POWER ENGINEERS, INC.
ENERGY, FACILITIES, COMMUNICATIONS
3940 GLENBROOK DRIVE
PO BOX 1066
HAILEY, ID 83333

PHONE 208-788-3456
FAX 208-788-2082

November 13, 2009

Cameron Johnson
South Branch Chief
San Francisco District
US Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

Subject: Solargen Energy- Panoche Valley Solar Farm Request for Jurisdictional Determination and Permit Application, San Benito County, California

Dear Mr. Johnson:

On behalf of Solargen Energy, POWER Engineers, Inc. (POWER) is formally requesting a Jurisdictional Determination for the above referenced project. Enclosed you will find the Wetland Delineation Report that POWER prepared following field survey to determine the presence of potentially jurisdictional Waters of the United States (including wetlands) that would likely be subject to regulation by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

Project Background

Solargen Energy Inc., proposes to construct and operate a solar photovoltaic energy generating facility, known as the Panoche Valley Solar Farm in eastern San Benito County. Implementation would include the installation of thin film photovoltaic (PV) solar panels on framed single-pole steel support structures and a 12 acre substation with an operation and maintenance facility on approximately 4,900 acres of undeveloped rangeland. Specifically, the project site is located in Sections 3-5, 8-11, and 13-16, of Township 15S, Range 10E and Sections 18-19 of Township 15S, 11E of the Cerro Colorado, Llanada, Mercy Hot Springs, and Panoche USGS 7.5-minute topographical quadrangle maps, respectively.

Also enclosed you will find an Application for Department of The Army Permit (ENG Form 4345) for a Nationwide Permit #12 associated with minor impacts to Panoche Creek and Las Aguilas Creek should you determine that the waters on site are jurisdictional. Construction of project facilities including permanent access roads and underground electric lines will result in minor fill within these drainages as outlined in the enclosed application. Attached to the application you will find the Draft Initial Study which contains project details including sensitive species and cultural resource information.

POWER is respectfully requesting a pre-application meeting with the Corps on-site to review the project area and discuss any permitting requirements. Please notify me of a date and time at your earliest convenience. Should you have any questions or need additional information please contact me directly at (208) 309-3389.

IF ENCLOSURES ARE NOT AS NOTED, PLEASE NOTIFY US AT ONCE.

Thank you in advance for your attention to this matter.

Sincerely,

Kevin Lincoln
Environmental Specialist

Enclosure(s):

c: Eric Cherniss (Solargen Energy)
Dave Sutton (POWER)
117257.03.01.03
PER 02

U.S. Army Corps of Engineers

Permit Application

Panoche Valley Solar Farm Project

List of Attachments:

- Permit Application Form
- Waters Impact Map

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME:
First - Eric Middle - T. Last – Cherniss
Company – Solargen Energy
E-mail Address – echerniss@solargen-energy.com

8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - Kevin Middle - L. Last – Lincoln
Company – POWER Engineers, Inc.
E-mail Address – kevin.lincoln@powereng.com

6. APPLICANT'S ADDRESS.
Address - 20400 Stevens Creek Blvd. Ste. 700
City – Cupertino State – CA Zip – 95014 Country – USA

9. AGENT'S ADDRESS
Address - 3940 Glenbrook Dr.
City – Hailey State – ID Zip – 83333 Country – USA

7. APPLICANT'S PHONE NOs. W/AREA CODE.
a. Residence b. Business c. Fax
(408) 460-8200

10. AGENT'S PHONE NOs. W/AREA CODE
a. Residence b. Business c. Fax
(208) 309-3389

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Kevin Lincoln to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Panoche Valley Solar Farm

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Panoche Creek, Las Aguilas Creek

14. PROJECT STREET ADDRESS (if applicable)
Address Little Panoche Road
Panoche Valley, San Benito County
City - State – CA Zip -

15. LOCATION OF PROJECT
Latitude: °N 36.643
Longitude: °W -120.873

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section – Township – Range – See Attached Map

17. DIRECTIONS TO THE SITE
See Attached Map

18. Nature of Activity (Description of project, include all features)

Construction of solar photovoltaic energy generating facility. See attached Initial Study for project details.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

To support California in meeting the Renewable Portfolio Standard Mandate requiring investor-owned utilities to supply 20% of their total electricity through renewable energy by the year 2010.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Construction of all-weather road across Panoche Creek and Las Aguilas Creek including the placement of culverts. Underground electrical cables would be trenched through Panoche Creek.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
Culvert: 87 Linear Feet Panoche Creek; Culvert: 69 Linear Feet Las Aguilas Creek	Stone Backfill: TBD	Electrical Cable: 39 Linear Feet Panoche Creek

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

Or

Liner Feet 195 Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Access roads were designed to use existing crossings, or utilize new crossings only where necessary for construction and operation of the project.

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☑ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address – 3616 Panoche Rd.

City – Paicines State – CA Zip – 95043

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
San Benito County	Use Permit	UP 1023-09	10-16-09	Pending	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

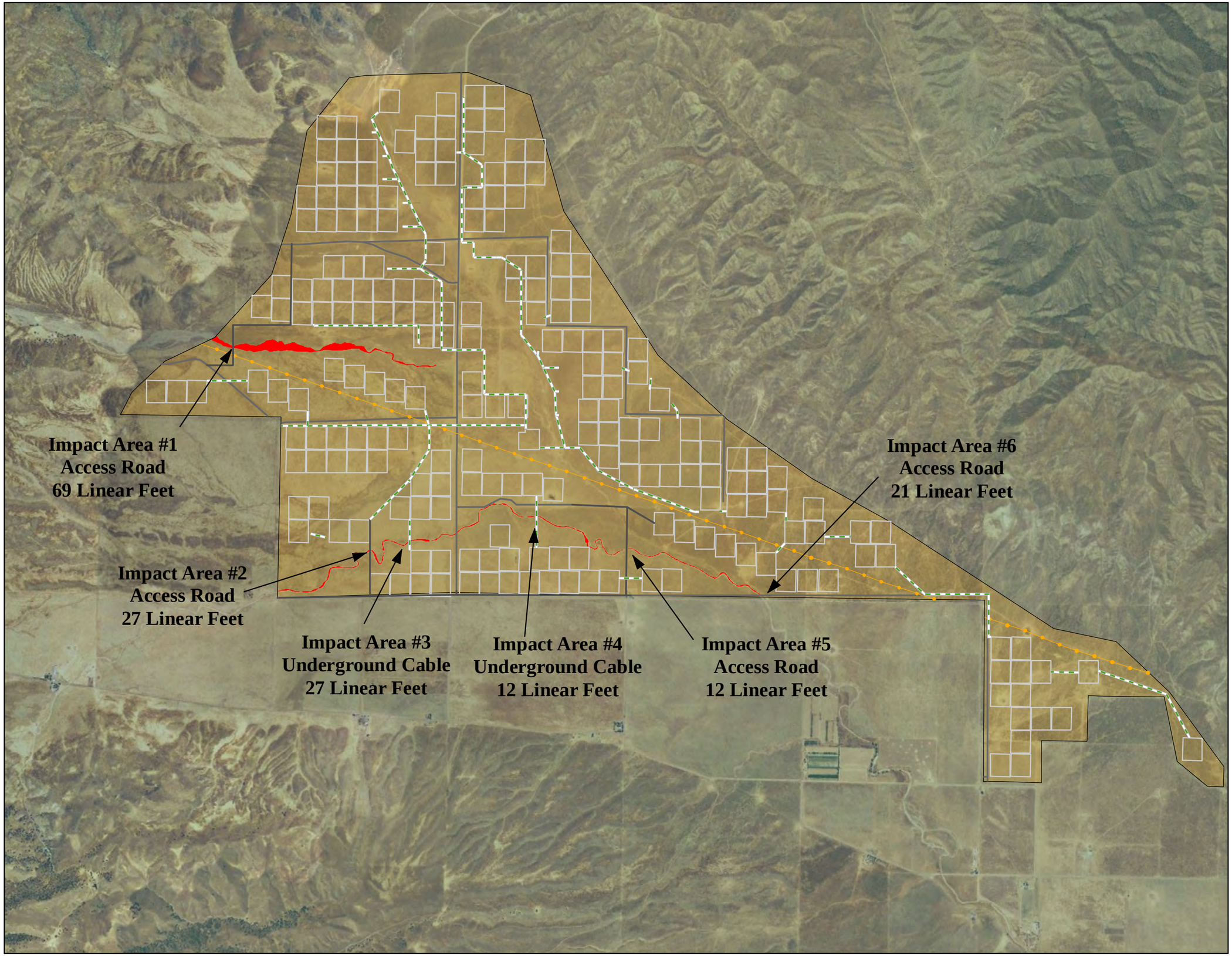
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Panoche Valley Solar Farm

Study Area Impact Map



Legend

- PV Panel Block
- Underground Cable
- Existing Transmission Line
- Road
- Ordinary High Water Mark
- Study Area

N

W E

S

1 inch = 0.5 miles

0 0.25 0.5 0.75 Miles

POWER ENGINEERS

Solargen Energy

Date Printed: November 11, 2009

R:\117257_Ponoche\DD\GIS\Applications\Fig4_Impacts

November 12, 2009

SOLARGEN ENERGY

Panoche Valley Solar Farm

Wetland Delineation Report

PROJECT NUMBER:
117257

PROJECT CONTACT:
Kevin Lincoln
EMAIL:
Kevin.Lincoln@POWEREng.com
PHONE:
(208) 788-0314

POWER ENGINEERS

Wetland Delineation Report

PREPARED FOR: SOLARGEN ENERGY
PREPARED BY: KEVIN LINCOLN
(208) 788-0314
KEVIN.LINCOLN@POWERENG.COM

REVISION HISTORY		
DATE	REVISED BY	REVISION
11/9/09	POWER	1
11/12/09	K. Lincoln	2

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

At the request of Solargen Energy, POWER Engineers, Inc. (POWER) conducted a delineation of wetlands and other waters for the Panoche Valley Solar Farm Project site (Study Area). The Study Area is located in eastern San Benito County (Figure 1) approximately 30 miles south of Los Banos. The Study Area encompasses approximately 4900 acres of grazing lands on private property at latitude 36.643 N and longitude -120.873 W (Figure 2).

On October 19 to 23, 2009, environmental specialists from POWER Engineers, Inc. conducted field investigations of the Study Area to determine the presence of potentially jurisdictional Waters of the United States (including wetlands) that would likely be subject to regulation by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. This report documents the wetland delineation process and results.

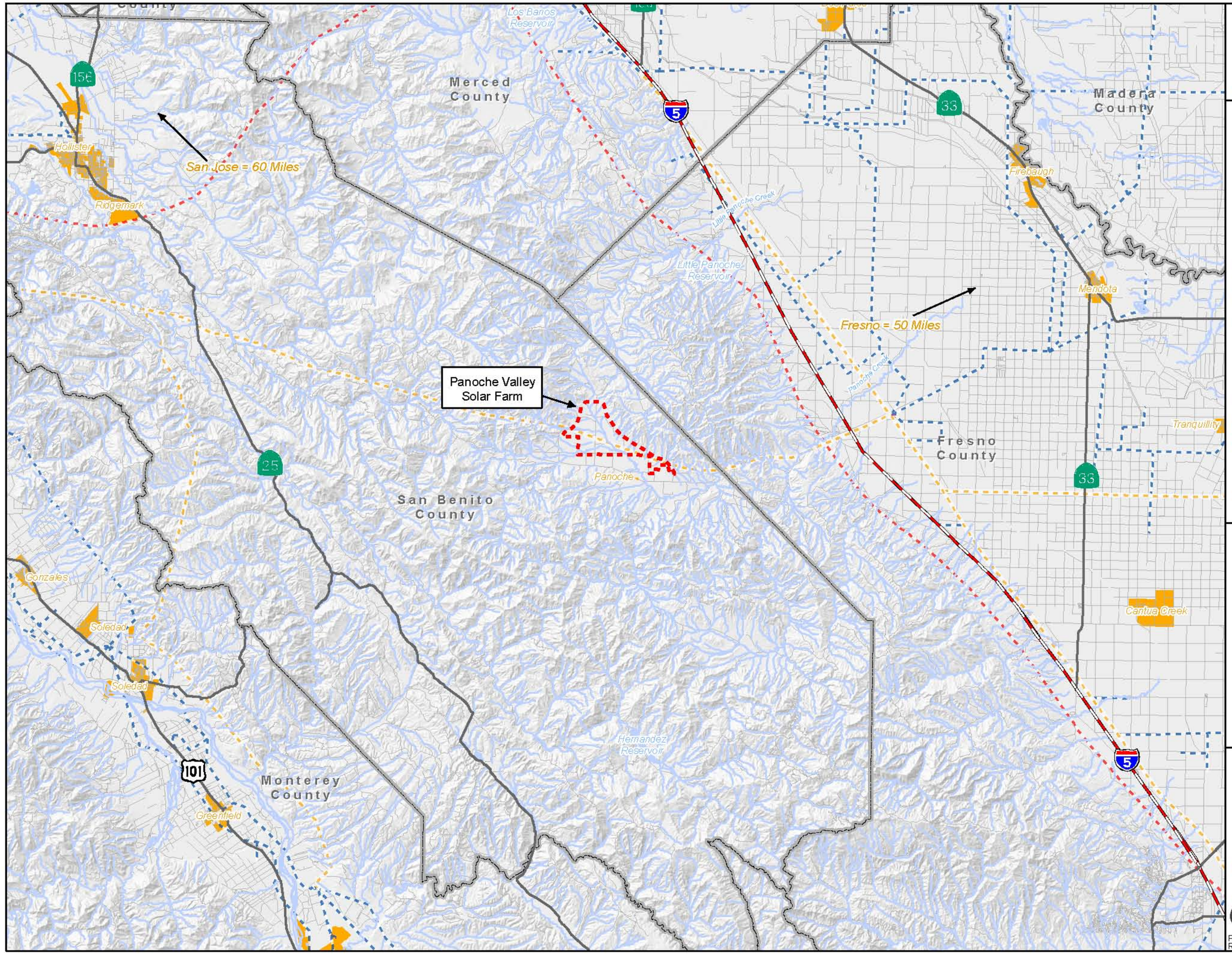
2.0 METHODOLOGY

Prior to conducting the field investigation, USGS topographic maps, aerial photography, National Weland Inventory (NWI) maps, and soil surveys of the Study Area were examined to determine locations of potential areas of Corps jurisdiction. In addition, a statistical analysis of peak discharge associated with Panoche Creek was conducted in accordance with the Corps' *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Manual). The Natural Resources Conservation Service (NRCS) Web Soil Survey was used to identify soil types within the Study Area. Potential jurisdictional areas were evaluated using methodology set forth in the Corps' *1987 Wetland Delineation Manual* (Manual), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Manual), and the OHWM Manual.

From October 19 to 23, 2009, POWER environmental specialists Kevin Lincoln, Allison Carver, and Mike Serrano delineated the boundaries of the OHWM of Panoche Creek, Las Aguilas Creek, and other drainages within the Study Area. Analysis of peak discharge data indicated that the OHWM of these drainages in the Panoche Valley generally correspond with the 10-year floodplain. Because, in many areas of the creeks, the streambeds had distinct beds and banks, no soil pits were required to determine OHWM. The OHWMs and stream courses of Panoche Creek and Las Aguilas Creek were surveyed using a Trimble GPS unit with sub-meter accuracy and later mapped using ArcInfo Geographic Information System (GIS).

Panoche Valley Solar Farm

Figure 1
Vicinity Map



Legend

- Study Area Boundary

Existing Utility Lines

- 500kV Transmission Line
- 230kV Transmission Line
- 138 and 69kV Transmission Line

Administrative Boundaries

- County Boundary
- City Boundary

Water Features

- Water Body
- Stream

Transportation Features

- Interstate 5
- State Route
- Local Road

N
W E
S

1 in = 5 miles

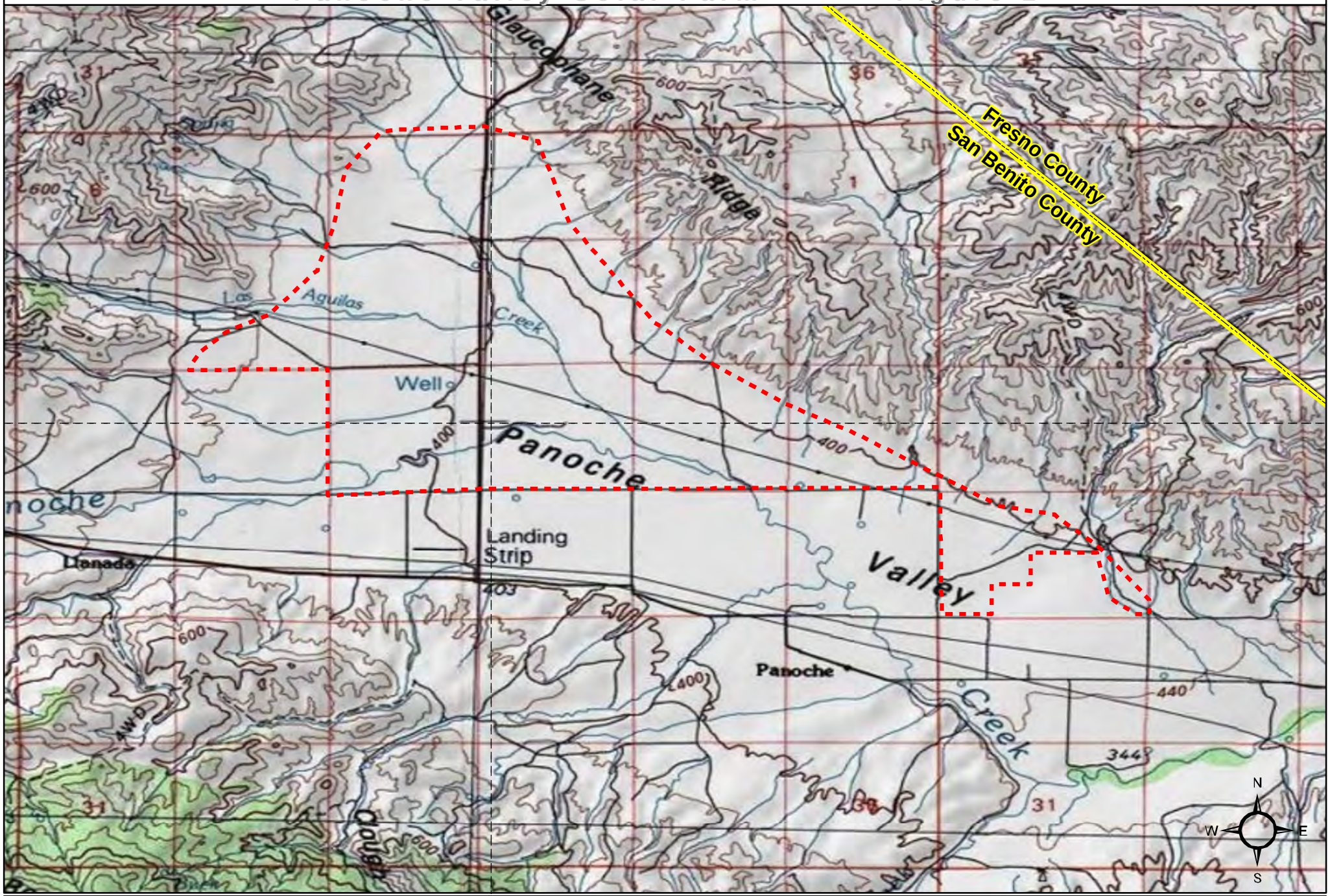
0 5 10 Miles

POWER ENGINEERS

Solargen Energy

Print Date: 11/11/2009
R:\117257_Ponoche\DD\GIS\Applications\Vicinity_Hailey

Panoche Valley Solar Farm Figure 2



County Boundary Study Area Boundary USGS Quads: Cerro Colorado, Mercey Hot Springs, Panoche, Llanada

POWER ENGINEERS

R:\117257_Ponoche\DD\GIS\Applications\QuadMap_Print Date: 11/11/2009

1:63,360 1 inch=1 mile 0 1 2 Miles

Solargen Energy

3.0 SOILS

The NRCS has mapped the following hydric soil type within the Study Area.

TABLE 1-1 SOILS TYPES OCCURRING WITHIN THE PROJECT AREA

SOIL NAME	SYMBOL	LANDFORMS	HYDRIC (Y/N)	HYDRIC CRITERIA
Gullied lands	GuE	Drainageways	N	
Kettleman	KeF2	Hill slopes and uplands	N	
Los Banos	LuC, LuF3	Terraces and fan remnants	N	
Panhill	PlA, PlC, PkA, PkC	Alluvial fans and floodplains	N	
Riverwash	Rv	Streams and rivers	Y	4
Shedd	ShE2	Hill slopes	N	
Valllecitos	VrF2	Hill slopes	N	
Yolo	YoC, YvB	Alluvial fans	N	

Riverwash (Rw)

Riverwash consists of mixed water-washed sand and gravel, occurs along streams or rivers and is often flooded during storm events. Within the Study Area, Riverwash is found along both Panoche Creek and Las Aguilas Creek. Riverwash soils are listed as hydric soils within San Benito Coulty based on the following hydric soil criteria: *Criteria 4. Soils that are frequently flooded for long duration or very long duration during the growing season.*

4.0 HYDROLOGIC DATA

Data from the Western Regional Climate Center (WRCC) was available for the National Weather Service Cooperative Station (Co-oP) in Panoche Valley.

The Panoche 2 West Co-op Station in Panoche records an annual average precipitation of 9.75 inches, most of which occurs between November and March. A rainfall event, approximating a 25-year storm event, was recorded at this station on February 3, 1998, when the station recorded 2.98 inches of precipitation during a 24-hour period. Relatively low rainfall levels have been recorded at the Panoche 2 West station since 1998, with only two records of storms approximating 2-year storm events.

Peak streamflow data was obtained from the USGS stream gauge located in Panoche Creek at Interstate 5 (#11255575), approximately 12.5 linear miles downstream of the Study Area. The period of record for this gauge is from December 2007 to current. Historic stream flow records are available for the original Panoche Creek gauging station, which was located in Panoche Creek below Silver Creek, approximately 3.2 miles upstream of the current gauging station. The period of record for this stream gauge is from 1949 through 1970.

Peak stream flow data from both the historic and current stream gauges were used to calculate the expected probable peak stream flow for 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year flood events for lower Panoche Creek (see Table 1-1).

On February 3, 1998, the Panoche Creek stream gauge recorded a peak streamflow of 9,940 cubic feet per second (cfs), roughly equal to a 50-year flood event. Since that time, only three peak streamflows have approximated or exceeded the 5-year flood event (Table 1-2).

TABLE 1-2 PROBABLE PEAK STREAM FLOW FOR DESIGNATED RECURRENCE INTERVALS

FLOOD EVENT	EXPECTED PROBABLE FLOW (CFS)
2-year	162
5-year	974
10-year	2,289
25-year	5,474
50-year	9,337
100-year	14,906

TABLE 1-3 PEAK STREAM FLOW FOR PANOCHE CREEK AT INTERSTATE 5 (USGS 11255575)

DATE	STREAMFLOW (CFS)
February 3, 1998	9,940*
June 25, 1999	17
February 23, 2000	188
March 5, 2001	2,710*
June 29, 2002	30
December 29, 2002	290
February 25, 2004	82
December 31, 2004	1,850*
April 5, 2006	698*
December 7, 2006	0.43
January 27, 2008	281

* Discharge approximating or exceeding the expected probable 5-year flood event

Within the Study Area, Panoche Creek and Las Aguilas Creek are part of the larger Panoche/Silver Creek Watershed (PSCW). The PSCW is located upstream and to the west of Mendota, California, in the Panoche-San Luis Reservoir Watershed (HUC 18040014). The watershed area encompasses approximately 300 square miles upstream of Interstate 5. Rainfall events, as described above, yield erosion and the downslope and downstream transport of sediment. High concentrations of selenium are contained within this sediment. During these runoff events, sediment-loading problems occur in downstream agricultural production areas, Mendota urban areas, irrigation water conveyance structures and streams. During rain events with greater than a five year return period, sediment and selenium are carried into the San Joaquin River and contribute to the river exceeding its water quality objectives. The Panoche alluvial fan is the principal source of selenium from the PSCW to the downstream Grasslands watershed and the San Joaquin River.

5.0 CURRENT AND RECENT LAND USE

The Study Area is currently used for rangeland uses and open space. The Land Use Element of the San Benito County General Plan designates the majority of the Study Area as Agricultural Rangeland. The uses allowed within this category include agriculture, grazing, land in its natural state, wildlife refuges, very low intensity residential, and uses that, by their nature, must be located in undeveloped areas. Conditional uses include mineral extraction, low-density recreational facilities and institutional land uses.

The Agricultural Rangeland designation is also assigned to the remote hillside areas and watershed, many of which have been classified as some form of open space within the Open Space and Conservation Elements. These areas are typified by a lack of transportation access, high to very high fire hazard and by the lack of utility services to allow for more dense types of development. Many of these areas are found within the critical fire hazard area or in the "out back" areas of the many isolated canyons throughout the County.

6.0 RESULTS

Wetlands

The NWI identified several Palustrine, Unconsolidated Shore, Seasonally Flooded/ Saturated, Diked/ Impounded (PUBFh) wetlands within the Study Area associated with a tributary to Las Aguilas Creek (Figure 4). These areas were investigated and tested for the presence of wetland indicators. All of the PUBFh wetlands are man-made livestock ponds that had recently been graded. Soil pits were dug both within the disturbed areas and the adjacent undisturbed low-lying areas. No hydric soils or other wetland indicators were identified. The area down gradient from the livestock ponds were investigated for the presence of an OHWM, and no evidence was found of a definable bed or bank, scour or sediment transport. The boundaries of the livestock ponds were delineated (Figure 3) and photographed (Photos 29, 30 and 31 in Appendix A.)

The NWI also identified one Palustrine Emergent, Temporarily Flooded, Excavated (PEMAx) wetland within the Study Area associated with Las Aguilas Creek (Figure 4). This area was investigated for the presence of wetland indicators. No wetland indicators were identified. The area was historically used as a water storage pond and based on the presence of a distribution line, piping and remnant pump equipment, water was pumped from this area to other areas on the property. Please see photo 13 in Appendix A.

Panoche Valley Solar Farm

Figure 3
Delineation Map

Las Aguilas Creek

Panoche Creek

Fresno County

San Benito County

Legend

Study Area Boundary

Delineated Water Features

Non-Jurisdictional Drainage (No OHWM)

Jurisdictional Drainage (Visible OHWM)

Stock Ponds

NWI Features

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

Other

Administrative Boundary

County Boundary

N

W E

S

1 inch = 0.5 Miles

0 0.25 0.5 0.75 Miles

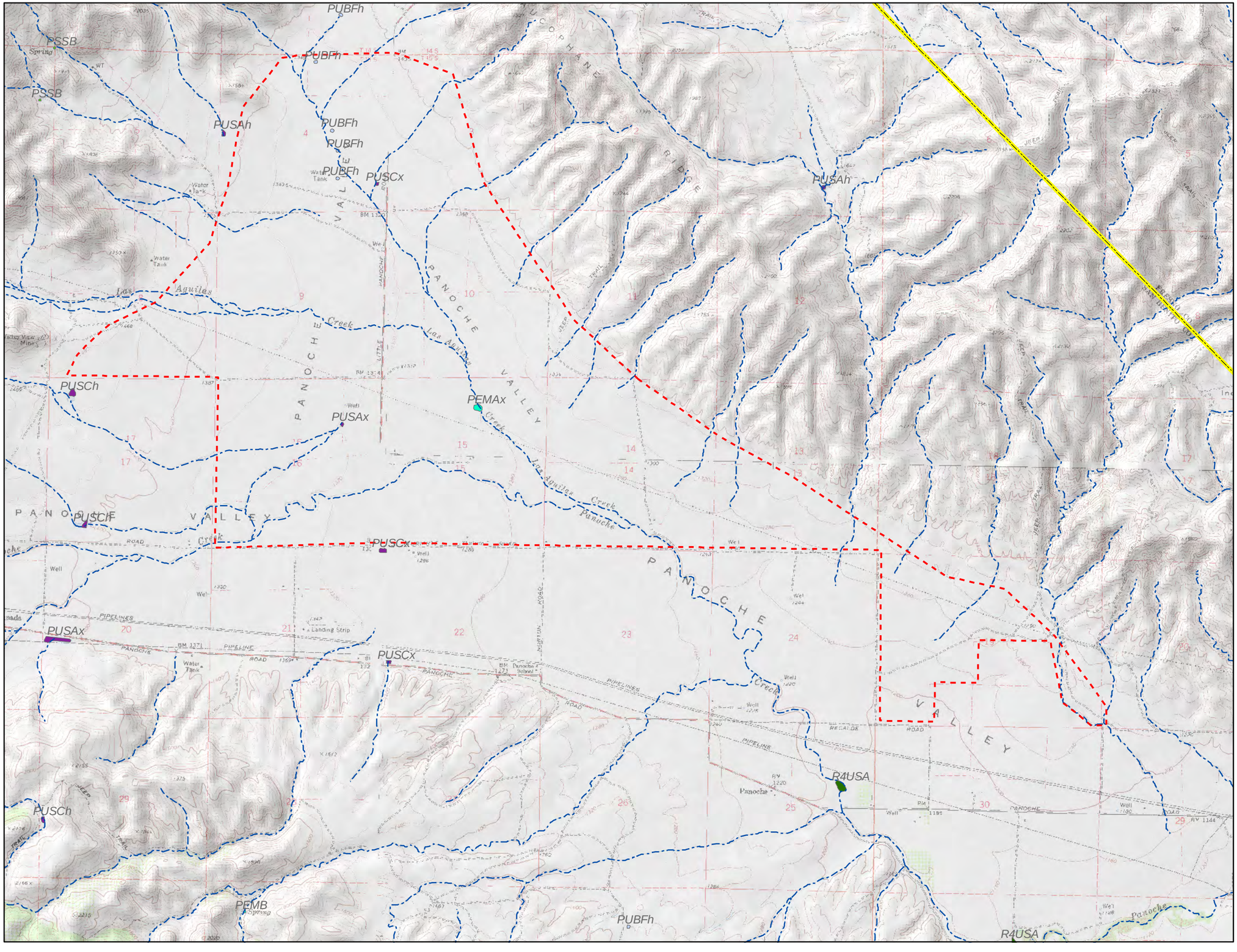
POWER ENGINEERS

Solargen Energy

Print Date: 11/11/2009
R:\117257_Panoche\DD\GIS\Applications\Fig3_DelineationsNWI

Panoche Valley Solar Farm

Figure 4
NWI Feature Map



Legend

- Study Area Boundary

Administrative Boundary

- County Boundary

Water Features

- Blue Line Features

National Wetland Inventory Features

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine
- Other

N
W E
S

1:35,000

0 0.5 1
Miles

POWER ENGINEERS

Solargen Energy

Print Date: 11/11/2009
R:\117257_Ponoche\DD\GIS\Applications\Fig4_NWI

Non-Wetland Waters of the U.S.

The Study Area contains two blue-line drainages, Panoche Creek and Las Aguilas Creek as well as un-named tributaries to those drainages as depicted on the USGS topographic map (Figure 2). These areas were investigated for the presence of an OHWM using the methodology set forth in the OHWM Manual.

Drainages were surveyed beginning from the downstream end of the Study Area to the upstream end. The majority of Panoche Creek exhibited indicators of an OHWM and portions of Las Aguilas Creek exhibited indicators of an OHWM. Both of these drainages are ephemeral and flow only during, and for a short duration after precipitation events. Groundwater is not a source of water for these drainages. At the time of the survey, the entire area was heavily grazed by livestock, making identification of plant species difficult. However, changes in overall vegetation density were observable and proved valuable as a vegetative OHWM indicator. The portions of these drainages exhibiting an OHWM are depicted on Figure 3. OHWM Data Forms are included in Appendix B.

Panoche Creek

Panoche Creek traverses the southern portion of the Study Area for approximately 18, 700 feet. This segment of Panoche Creek is ephemeral and has an incised channel with a substrate of sand, gravel and cobble. The OHWM varies from 5 to 90 feet in width. The main stem of the drainage is crossed by a bridge on Little Panoche Road, which runs north/south through the Study Area.

The low flow channel of the drainage below the OHWM generally does not support vegetation. The transition from the low flow channel to the active floodplain was distinguishable by an increase in vegetative cover, change in particle size distribution, organic drift and a break in bank slope. The indicators above the OHWM included an increase in vegetative cover, surface rounding and surface relief. Figure 5 shows the location of the OHWM identified in this location that was typical of the Panoche Creek drainage.

Panoche Creek flows out of the Panoche Valley between the Panoche Hills and Tumey Hills, and northeast into the San Joaquin Valley. Panoche Creek disappears approximately 9.5 miles northeast of Interstate 5, in Township 14 South Range 13 East Section 2 NE of the USGS Chaney Ranch quadrangle (latitude 36° 44’ 54.24” N, longitude 120° 30’ 47.96” W). The Mendota Wildlife Area and the San Joaquin River are located approximately 9 miles east and 8 miles east of this point, respectively.

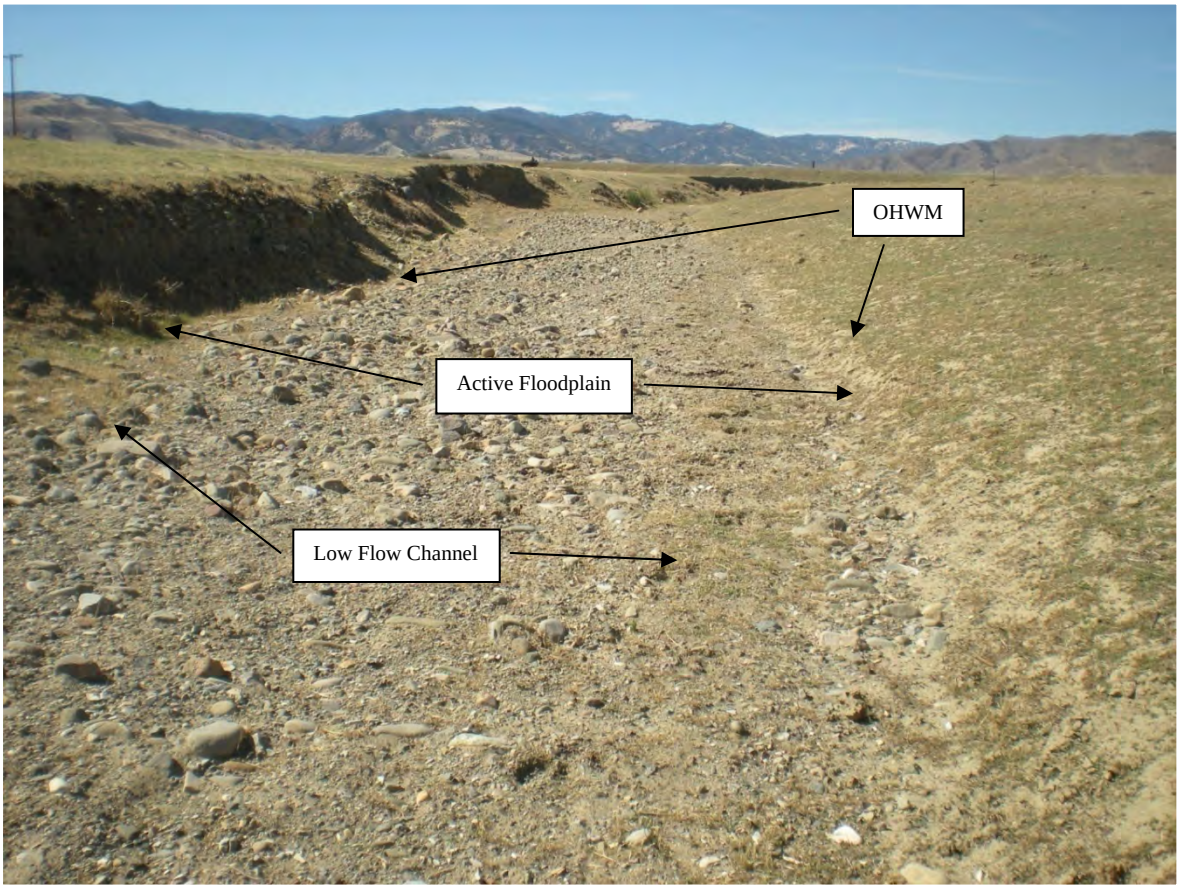


FIGURE 5: Typical OHWM of Panoche Creek

Las Aguilas Creek

Las Aquilas Creek traverses the central portion of the Study Area for approximately 18, 500 feet. It is an ephemeral drainage and has a channel that ranges from non-existent to incised with a substrate of sand, gravel and cobble, to braided with a broad floodplain. The OHWM varies from 10 to 360 feet in width. The main stem of the drainage is crossed by Little Panoche Road, which runs north/south through the project study area.

The lower reaches of Las Aguilas Creek from the confluence with Panoche Creek to a point approximately 5,930 feet northwest lacked indicators of an OHWM. This reach resembled a swale, with no evidence of a bed or bank and no evidence of sediment transport. The bottom of the drainage was uniformly vegetated and there was no apparent change in particle size distribution. From this point northwest to Little Panoche Road, there was virtually no drainage visible, let alone an OHWM. The drainage is interrupted by Little Panoche Road at this location, and two culverts allow ephemeral discharge to pass through. Immediately above the road, sediment deposits have built up, eliminating any definable channel, where it appears runoff sheet flows towards the road and eventually finds its way to the culverts. Approximately 417 feet northwest of Little Panoche Road, the drainage begins to exhibit a bed and bank again. The low flow channel of the drainage below the OHWM generally does not support vegetation. The transition from the low flow channel to the active floodplain was distinguishable by an increase in vegetative cover, change in particle size distribution and a break in

bank slope. The indicators above the OHWM included an increase in vegetative cover, surface rounding and surface relief. Figure 6 shows the location of the OHWM identified in this location that was typical of the Las Aguilas Creek drainage beginning at Little Panoche Road and extending approximately 7000 feet west.

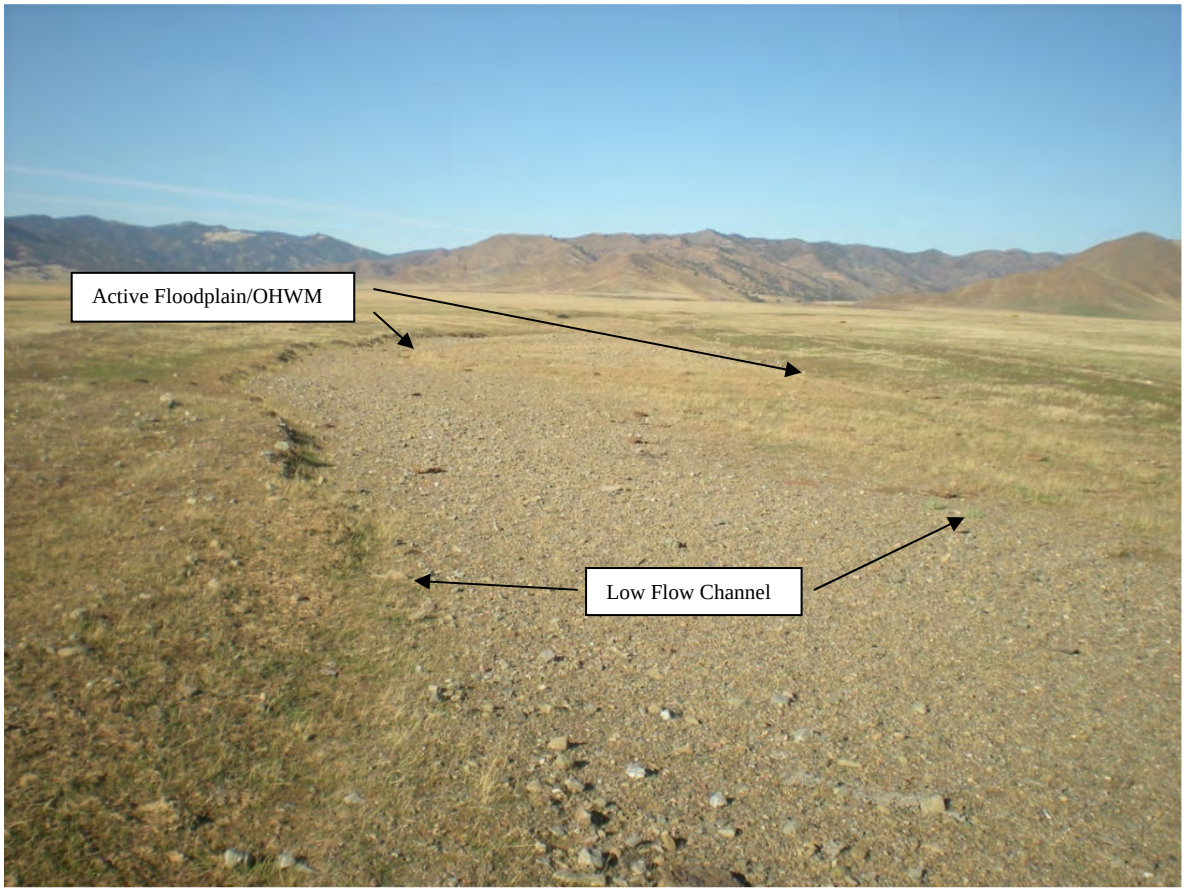


FIGURE 6 Typical OHWM of Las Aguilas Creek

The channel above this point begins to braid, with several low flow channels existing within the broader floodplain and continues this to the western boundary of the project area. Indicators used to define the OHWM included an increase in vegetative cover, change in particle size distribution and a break in bank slope. The indicators above the OHWM included an increase in vegetative cover, surface rounding and surface relief.

Additional Features

Several drainage features within the Study Area appeared to have the potential to contain an OHWM based on mapping and topography; however, the field investigation showed no evidence of flow or an OHWM. These features are identified as a dashed line on Figure 3.

7.0 CONCLUSIONS

Three PUB wetlands totaling approximately 1.46 acres were delineated within the Study Area as shown in Figure 3.

A total of approximately 18,700 feet of stream channel exhibiting an OHWM was delineated within the Panoche Creek drainage on site. A total of approximately 7,025 feet of stream channel exhibiting an OHWM was delineated within the Las Aguilas Creek drainage on site. The locations and extent of these stream channels are shown on Figure 3.

8.0 REFERENCES

Natural Resources Conservation Service (NRCS), United States Department of Agriculture. National Hydric Soils List by State (January 2009) [Online WWW]. Available URL: "http://soils.usda.gov/use/hydric/lists/state.html" [Accessed 10 June 2009]. USDA-NRCS, Lincoln, NE.

San Benito County Department of Public Works and Planning. Adopted 1992; amended 2005. San Benito County General Plan.

Soil Survey Staff, Natural Resources Conservation Service (NRCS), United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: "http://soils.usda.gov/technical/classification/osd/index.html" [Accessed 10 June 2009]. USDA-NRCS, Lincoln, NE.

United States Army Corps of Engineers. 1987. Wetlands Delineation Manual.

2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Version 2.0).

2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, a Delineation Manual.

2009. Hydrologic Engineering Center Statistical Software Package (HEC-SSP), Version 1.1.

United States Geological Survey. National Water Information System, Peak Stream flow for the Nation. http://nwis.waterdata.usgs.gov/nwis/peak?state_cd=06&sort_key=station_nm&grou. Accessed October 2009.

WRCC (Western Regional Climate Center). Western U.S. Climatological Data Summaries. http://www.wrcc.dri.edu/climsum.html. Accessed October 2009.

APPENDIX A: PHOTO LOG

Panoche Valley Solar Farm

Photo Log Map

Appendix A

Legend

- Study Area Boundary

Administrative Boundary

- County Boundary

Delineated Water Features

- Photo Point
- Photo Point Direction
- Ordinary High Water Mark

N

W E

S

1:27,437

0 0.5 1 Miles

POWER ENGINEERS

Solargen Energy

Print Date: 11/11/2009
R:\117257_Ponoche\DD\GIS\Applications\AppendixA_PhotoLog

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

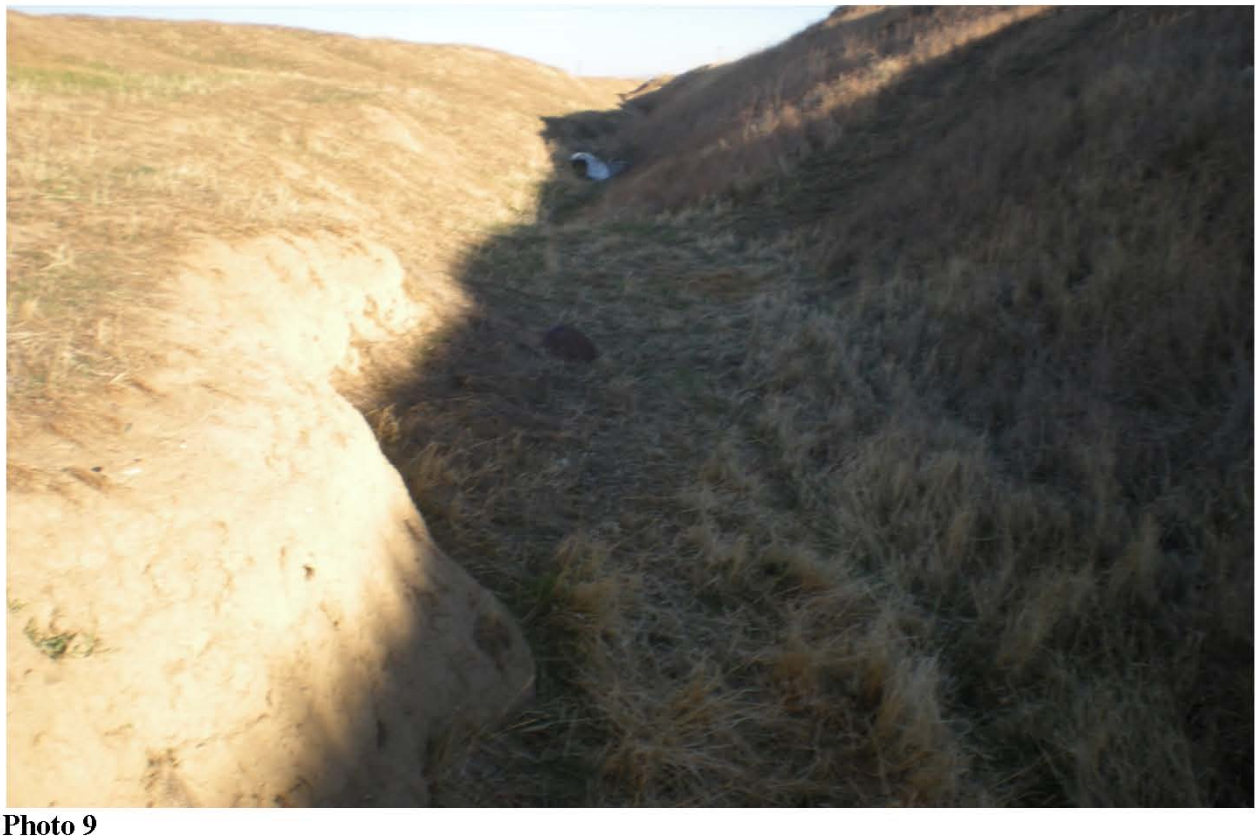


Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

Photo 25

Photo 26

Photo 27

Photo 28

Photo 29

Photo 30

Photo 31

Photo 32

Photo 33

Photo 34

APPENDIX B: DATA FORMS

Project: Panoche
Project Number:
Stream: Las Aguilas Creek
Investigator(s): Kevin Lincoln, Allison Carver

Date: October, 2009
Town: Panoche
Photo begin file#

Time:
State: CA
Photo end file#

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates: 36 38' 8.986" N 120 52' 42.654" W

Notes:

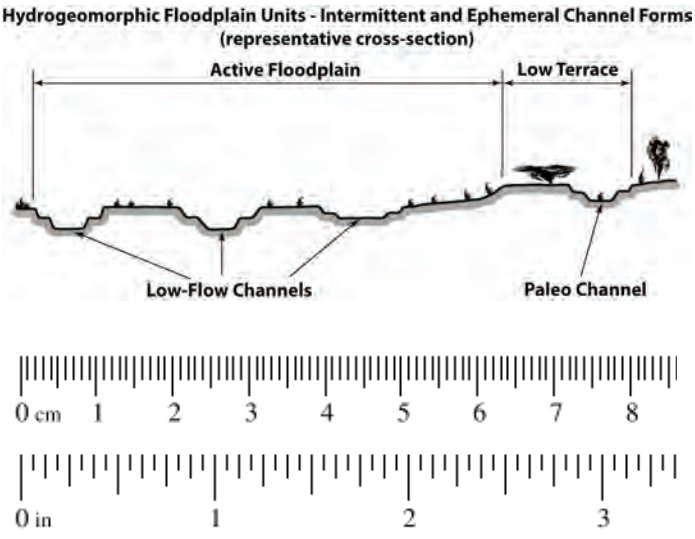
Brief site description: Panoche Valley - Heavily grazed rangeland on relatively level valley floor.

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
  Scale:
- [ ] Geologic maps
- [ ] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number: abc
  Period of record: abc
- [ ] Clinometer / level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



[x]	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
[x]	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sand/Gravel/Cobble Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____% Community successional stage: [x] NA [ ] Mid (herbaceous, shrubs, saplings) [ ] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____
[x]	**Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: [x] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb [x] Change in overall vegetation maturity [ ] Change in dominant species present [ ] Other [x] Presence of bed and bank [x] Drift and/or debris [ ] Other: _____ [ ] Other: _____
[x]	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: Sand/Gravel/Cobble Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 25-50 % Community successional stage: [ ] NA [ ] Mid (herbaceous, shrubs, saplings) [x] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____

[x] **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- [x] Change in average sediment texture
- [x] Change in total veg cover ☐ Tree ☐ Shrub [x] Herb
- [x] Change in overall vegetation maturity
- [ ] Change in dominant species present
- [x] Other
  - [x] Presence of bed and bank
  - [x] Drift and/or debris
  - [ ] Other: _____
  - [ ] Other: _____

[x] **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y [x] N [ ] Change in average sediment texture
- Y [x] N [ ] Change in total veg cover ☐ Tree ☐ Shrub [x] Herb
- Y [x] N [ ] Change in overall vegetation maturity
- Y [ ] N [x] Change in dominant species present
- Y [x] N [ ] Other:
  - Y [x] N [ ] Presence of bed and bank
  - Y [x] N [ ] Drift and/or debris
  - Y [ ] N [ ] Other: _____
  - Y [ ] N [ ] Other: _____

[ ] **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

[x] **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: Clay/Loam

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 50-90 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

_____

_____

Other:

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

[x] **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- [ ] Mapping on aerial photograph
- [x] GPS
- [ ] Digitized on computer
- [ ] Other: _____

Project: Panoche
Project Number:
Stream: Las Aguilas Creek
Investigator(s): Kevin Lincoln, Allison Carver

Date: October, 2009
Town: Panoche
Photo begin file#

Time:
State: CA
Photo end file#

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details: Near Windmill

Projection: **Datum:**
Coordinates:

Notes:

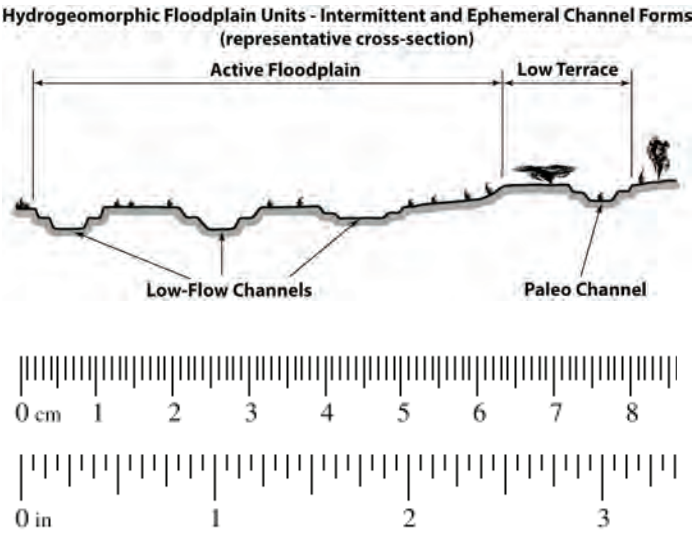
Brief site description: Panoche Valley - Heavily grazed rangeland on relatively level valley floor.

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
  Scale:
- [ ] Geologic maps
- [ ] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number: abc
  Period of record: abc
- [ ] Clinometer / level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



[x]	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
[x]	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sand/Gravel/Cobble Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____% Community successional stage: [x] NA [ ] Mid (herbaceous, shrubs, saplings) [ ] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____
[x]	**Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: [x] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb [x] Change in overall vegetation maturity [ ] Change in dominant species present [ ] Other [x] Presence of bed and bank [x] Drift and/or debris [ ] Other: _____ [ ] Other: _____
[x]	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: Sand/Gravel/Cobble Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 25-50 % Community successional stage: [ ] NA [ ] Mid (herbaceous, shrubs, saplings) [x] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____

[x] **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- [x] Change in average sediment texture
- [x] Change in total veg cover ☐ Tree ☐ Shrub [x] Herb
- [x] Change in overall vegetation maturity
- [ ] Change in dominant species present
- [x] Other
  - [x] Presence of bed and bank
  - [x] Drift and/or debris
  - [ ] Other: _____
  - [ ] Other: _____

[x] **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y [x] N [ ] Change in average sediment texture
- Y [x] N [ ] Change in total veg cover ☐ Tree ☐ Shrub [x] Herb
- Y [x] N [ ] Change in overall vegetation maturity
- Y [ ] N [x] Change in dominant species present
- Y [x] N [ ] Other:
  - Y [x] N [ ] Presence of bed and bank
  - Y [x] N [ ] Drift and/or debris
  - Y [ ] N [ ] Other: _____
  - Y [ ] N [ ] Other: _____

[ ] **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

[x] **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: Clay/Loam

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 50-90 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

_____

_____

Other:

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

[x] **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- [ ] Mapping on aerial photograph
- [x] GPS
- [ ] Digitized on computer
- [ ] Other: _____

Project: Panoche
Project Number:
Stream: Panoche Creek
Investigator(s): Kevin Lincoln, Allison Carver

Date: October, 2009
Town: Panoche
Photo begin file#

Time:
State: CA
Photo end file#

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates: 36 37' 2.119" N 120 50' 41.638" W

Notes:

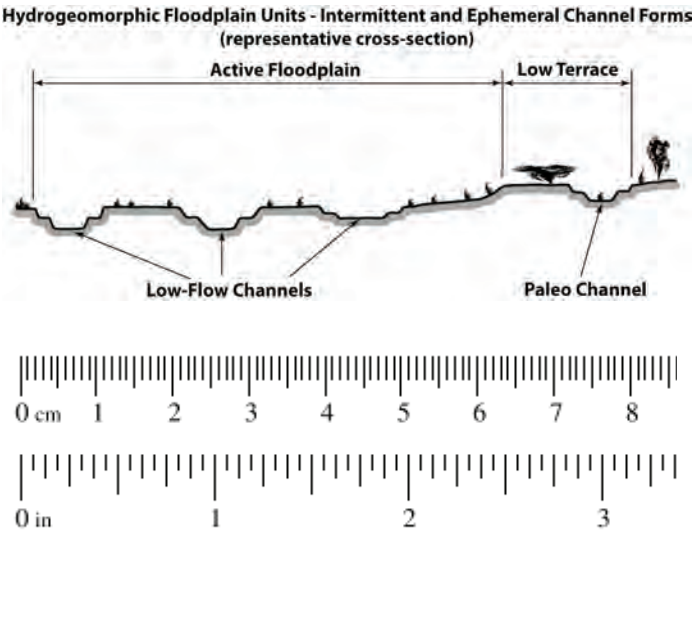
Brief site description: Panoche Valley - Heavily grazed rangeland on relatively level valley floor.

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
  Scale:
- [ ] Geologic maps
- [ ] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number: abc
  Period of record: abc
- [ ] Clinometer / level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
		Coarse sand	
0.020	0.50		
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
		Coarse silt	
1/16 0.0012	0.031		
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



[x]	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
[x]	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sand/Gravel/Cobble Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____% Community successional stage: [x] NA [ ] Mid (herbaceous, shrubs, saplings) [ ] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____
[x]	**Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: [x] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb [x] Change in overall vegetation maturity [ ] Change in dominant species present [ ] Other [x] Presence of bed and bank [x] Drift and/or debris [ ] Other: _____ [ ] Other: _____
[x]	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: Sand/Gravel/Cobble Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 25-50 % Community successional stage: [ ] NA [ ] Mid (herbaceous, shrubs, saplings) [x] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____

[x] **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- [x] Change in average sediment texture
- [x] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb
- [x] Change in overall vegetation maturity
- [ ] Change in dominant species present
- [x] Other
  - [x] Presence of bed and bank
  - [x] Drift and/or debris
  - [ ] Other: _____
  - [ ] Other: _____

[x] **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y [x] N [ ] Change in average sediment texture
- Y [x] N [ ] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb
- Y [x] N [ ] Change in overall vegetation maturity
- Y [ ] N [x] Change in dominant species present
- Y [x] N [ ] Other:
  - Y [x] N [ ] Presence of bed and bank
  - Y [x] N [ ] Drift and/or debris
  - Y [ ] N [ ] Other: _____
  - Y [ ] N [ ] Other: _____

[ ] **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

[x] **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: Clay/Loam

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 50-90%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

_____

_____

Other:

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

[x] **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- [ ] Mapping on aerial photograph
- [x] GPS
- [ ] Digitized on computer
- [ ] Other: _____

Project: Panoche
Project Number:
Stream: Panoche Creek
Investigator(s): Kevin Lincoln, Allison Carver

Date: October, 2009
Town: Panoche
Photo begin file#

Time:
State: CA
Photo end file#

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates: 36 37' 19.097" N 120 52' 35.711" W

Notes:

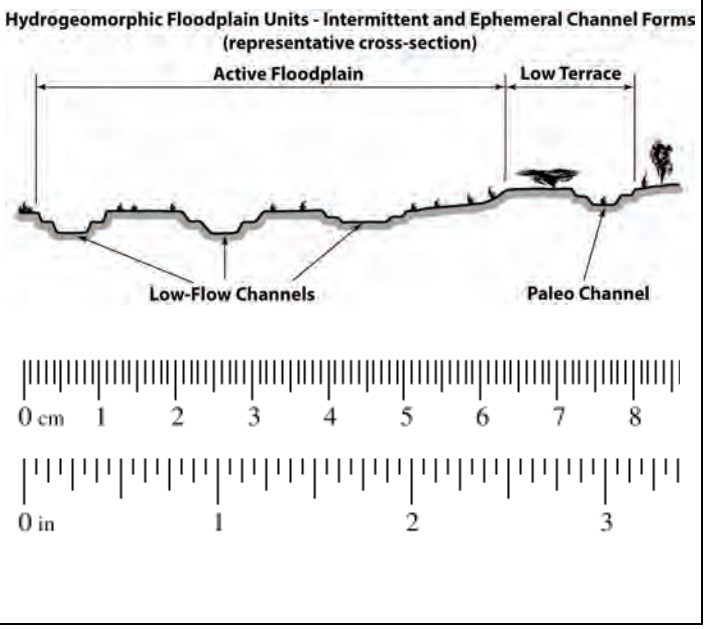
Brief site description: Panoche Valley - Heavily grazed rangeland on relatively level valley floor.

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
  Scale:
- [ ] Geologic maps
- [ ] Vegetation maps
- [ ] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number: abc
  Period of record: abc
- [ ] Clinometer / level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
		Coarse sand	
0.020	0.50		
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
		Very fine sand	
1/8 0.0025	0.0625		
		Coarse silt	
1/16 0.0012	0.031		
1/32 0.00061	0.0156	Medium silt	Silt
		Fine silt	
1/64 0.00031	0.0078		
		Very fine silt	
1/128 0.00015	0.0039		
		Clay	Mud



[x]	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
[x]	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sand/Gravel/Cobble Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____% Community successional stage: [x] NA [ ] Mid (herbaceous, shrubs, saplings) [ ] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____
[x]	**Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: [x] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb [x] Change in overall vegetation maturity [ ] Change in dominant species present [ ] Other [x] Presence of bed and bank [x] Drift and/or debris [ ] Other: _____ [ ] Other: _____
[x]	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: Sand/Gravel/Cobble Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 25-50 % Community successional stage: [ ] NA [ ] Mid (herbaceous, shrubs, saplings) [x] Early (herbaceous & seedlings) [ ] Late (herbaceous, shrubs, mature trees) Dominant species present: _____ _____ _____ Other: [ ] _____ [ ] _____ [ ] _____ [ ] _____

[x] **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- [x] Change in average sediment texture
- [x] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb
- [x] Change in overall vegetation maturity
- [ ] Change in dominant species present
- [x] Other
  - [x] Presence of bed and bank
  - [x] Drift and/or debris
  - [ ] Other: _____
  - [ ] Other: _____

[x] **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y [x] N [ ] Change in average sediment texture
- Y [x] N [ ] Change in total veg cover [ ] Tree [ ] Shrub [x] Herb
- Y [x] N [ ] Change in overall vegetation maturity
- Y [ ] N [x] Change in dominant species present
- Y [x] N [ ] Other:
  - Y [x] N [ ] Presence of bed and bank
  - Y [x] N [ ] Drift and/or debris
  - Y [ ] N [ ] Other: _____
  - Y [ ] N [ ] Other: _____

[ ] **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

[x] **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: Clay/Loam

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 50-90%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

_____

_____

Other:

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

[x] **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- [ ] Mapping on aerial photograph
- [x] GPS
- [ ] Digitized on computer
- [ ] Other: _____

Rare Plant Survey Results
Panoche Valley Solar Project
Project Footprint and Telecommunications Route

San Benito and Fresno Counties

October 2015

Prepared for:
Mr. Eric Cherniss
PVS 2 LLC

Prepared by:
McCormick Biological, Inc.
P.O. Box 80983
Bakersfield, California 93380

1.0 Introduction

The purpose of this report is to document rare plant surveys conducted by McCormick Biological, Inc. on the Panoche Valley Solar Project Footprint (approximately 2,506 acres) plus a buffer of at least 100 feet. The proposed Panoche Valley Solar Project (Project) is located in San Benito County, California (Attachment 1). In addition to surveys within the Project Footprint, eight wire pull sites, three guard structure sites, four temporary work areas, All Dielectric Self-Supporting (ADSS) pole sites and one helicopter landing zone were surveyed. These areas are located within natural lands that represent potential habitat for rare plant taxa along the proposed telecommunications routes for the Project within Pacific Gas & Electric (PG&E) right-of-way in San Benito and Fresno Counties. These surveys were conducted in compliance with the 2015 Final Supplemental Environmental Impact Report Mitigation Measure BR-3.1 (San Benito County 2015).

The surveys were conducted during 2015 following rare plant surveys conducted in 2009 and 2010 by Live Oak Associates (LOA 2009 and LOA 2010). The Project is located within the geographic range of several special-status plant taxa. The target lists prepared by Live Oak Associates were used as a baseline. Additional information sources were consulted to update the target list based on current available information. A literature review as described in Section 2.0 included 46 plant taxa evaluated in this report.

2.0 Data Collection and Evaluation Methods

Survey methods were consistent with the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Wildlife [CDFW] 2009) (Protocols). Two site visits were conducted specifically for identification of flora during the spring of 2015. During the early spring surveys (March), each of the Project components was surveyed by qualified botanists using walking transects spaced no more than 20 meters apart. Special attention was given to areas of unusual soils and high species diversity. Reference sites that were located within approximately ten miles of the Project Footprint were surveyed for three early season rare plant species, San Joaquin wooly threads (*Monolopia congdonii*), forked fiddleneck (*Amisinckia furcata*), and Panoche peppergrass (*Lepidium jaredii* ssp. *album*), to verify survey timing. All three of these taxa were verified to be in a flowering and fruiting stage that enabled positive identification. Reference sites for all potentially occurring rare plant species were not visited; however, these three species were considered suitable proxies for verification of appropriate timing for potentially occurring early flowering plant species.

The surveys were conducted from March 3 to March 13 (early spring), 2015 and May 5 to May 7, 2015 (late spring). Early spring surveys were documented in a memorandum to Ms. Jennifer Kaminsky (McCormick Biological, Inc. 2015). Methods and results for both early spring and late spring surveys are combined in this report.

Early spring surveys consisted of between five and seven surveyors walking parallel transects spaced at 75 feet on the Project Footprint and surveying the required 100 foot buffer around the Project Footprint. Each of the PG&E telecommunications elements was inventoried by one to two surveyors. Each area visited during the late spring (May) was surveyed by three surveyors walking meandering transects and visually evaluating all of the survey areas. During the early season survey, plants identified to genera in the target list were mapped for follow-up surveys. Global Positioning System (GPS) points were taken to enable follow-up late spring surveys for the plants in these genera that could not be identified during the early season survey. All sites identified as containing potential target species were revisited to during the late spring surveys confirm identifications. Based on site conditions and phenology of taxa observed during the May surveys, no further surveys were conducted in the summer. All other portions of the Project Footprint and telecommunications route were visually inspected to determine whether any previously unidentified taxa were present. Although line transects were not walked during this second visit, all portions of the Project Footprint and telecommunications route were visually evaluated. Survey transects were conducted within all areas with identifiable plants present during the time of the survey.

All plant taxa encountered during surveys were identified to the extent possible. Identifications were made using keys contained in The Jepson Manual: Vascular Plants of California (2nd Edition 2012) and updates found in the Jepson eflora (http://ucjeps.berkeley.edu/IJM.html), containing revisions to taxonomic treatments. Plant identifications were made using a 10x or greater magnification field hand lens and/or were collected and identified using a dissecting microscope.

When encountered, observations of special-status plant species were documented as follows:

coordinates were recorded using a handheld global positioning unit, number of plants in the population was counted (<50 individuals) or estimated (>50 individuals), percent of population flowering, vegetative, and/or in fruit was estimated. If enough individuals were present, a voucher specimen was collected following standard botanical collecting guidelines.

"Special-status" or "sensitive" plant species considered in this evaluation include those that may occur in the Project vicinity that have statutory protections, such as federal- and state-listed (rare, threatened, endangered) species and candidates for listing under the respective endangered species acts. In addition, species that are of "concern" to either United State Fish and Wildlife Service (USFWS) or CDFW have been included if the Project Footprint or immediate vicinity includes habitat that may be occupied by such species.

Species may meet the criteria for consideration if a special interest group, such as the California Native Plant Society (CNPS), has concluded through published data that the species is declining and warrants concern and potential habitat is present on the Project Footprint or immediate vicinity were also considered during the survey events. Species evaluated in this biological resource assessment are collectively referred to as "special-status species."

The list of special-status species evaluated for the Project was compiled by consulting previous reports prepared for the Project, pertinent literature, accessing the California Natural Diversity Data Base (CNDDB) and the CNPS Rare Plant Inventory (CNPS 2015). McCormick Biological, Inc. (MBI) staff and qualified botanists reviewed these records and other pertinent information, including available literature, to complete the list of species considered. Each species was then evaluated based on site characteristics and observations were recorded.

3.0 Results

3.1 Target Species List

The list of target species includes 46 taxa that may occur in the vicinity of the Project Footprint and telecommunications route (Table 3.1). Of these, eight were considered unlikely to occur based on lack of suitable vegetation communities or specific habitat considerations such as soils. Therefore, 38 species were identified as potentially occurring based on range and habitat considerations.

3.2 Findings

Site conditions were fair, with relatively late rains resulting in response from perennial and annual species. However, rainfall in the region was below average for a third straight year. Although grazing was the predominant land use on most of the survey area, a wide variety of plant taxa were observed, with 139 taxa in 31 families identified during the surveys.

Project Footprint

No federal or state listed rare, threatened or endangered plant species were observed within the Project Footprint during any of the surveys conducted by MBI. Several plant species ranked by the California Native Plant Society were observed (See Table 1). Impacts to a small portion of a

population (i.e., a few individuals) of plants that are not federally or State-listed, or impacts to a population for which loss of a local population would not substantially affect the range of the species, are not typically considered significant impacts under CEQA. Relatively small populations of forked fiddleneck, serpentine leptosiphon, and California groundsel were found within the Project Footprint (Figure 3.1). In the Panoche and Tumey Hills region, forked fiddleneck is found at several locations numbering in the thousands, while relatively large populations of serpentine leptosiphon (10,000+) and California groundsel (50+) were found outside of the Project Footprint on Conservation Lands during the survey.

Telecommunications Route

No federal or state listed rare, threatened or endangered plant species were observed within the Telecommunications Route during any of the surveys conducted by MBI. Lost Hills crownscale (*Atriplex coronata* var. *vallicola*), a plant ranked by the CNPS as 1B.2, was found near a proposed guard structure. Hundreds of individuals were observed on an open hillside under the existing PG&E transmission line within approximately 300 feet of the guard structure. Additionally, approximately 50 individuals were observed within the survey area approximately 300 feet east of the work area of a proposed wire pull site (Figure 3.2). A small number of individuals may be impacted in association with installation of the guard structure.

In addition, Idria buckwheat (*Erogonum vestitum*), a CNPS rank 4.3 plant, was observed in the vicinity of the guard structure but not within the work area. This plant is a watch list species, and as such, requires no further avoidance measures.

Impacts to these species would be reduced through implementation of Mitigation Measures BR-G.1 through BR-G.6 would ensure that (1) All construction personnel participate in the Worker Environmental Education Program; (2) Best Management Practices (BMPs) for biological resources are implemented; (3) A Habitat Restoration and Revegetation Plan is developed and implemented; (4) Biological construction monitoring is implemented; (5) Conservation easements are created for permanent habitat protection as appropriate; and (6) A Habitat Mitigation and Monitoring Plan is developed and implemented for mitigation lands. MM BR-1.1 would ensure the preparation and implementation of a Weed Control Plan and MM BR-1.2 would ensure the development of a Grazing Plan for vegetation management on the site. In addition, MM AQ-1.1 would reduce impacts from fugitive dust.

Table 3.1: Target List of Special-status Plant Species and Survey Findings Summary

Species	Status	Flowering Period	Comments
Amsinckia furcata Forked fiddleneck	CRPR 4.2	March-May	Approximately 80 individuals observed in the southeastern portion of the Project Footprint; populations numbering in thousands observed on BLM lands to the southeast. This relatively small population is not of regional significance.
Androsace elongata ssp. *acuta* California androsace	CRPR 4.2	February-April	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Antirrhinum ovatum Oval-leaved snapdragon	CRPR 4.2	May-July	Microhabitat typical for this species not observed; impacts not anticipated.
Astragalus macrodon Salinas milk vetch	CRPR 4.3	April-June	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Astragalus rattanii var. *jepsonianus* Jepson's milk vetch	CRPR 1B.2	April-June	Typical soils for this species are not present; very unlikely to occur. Impacts not anticipated.
Atriplex cordulata var. *cordulata* Heartscale	CRPR 1B.2	June-July	Small areas of suitable soils present in alkaline areas in northwestern portion of Project Footprint. Even though survey conducted prior to blooming period, certain characteristics are identifiable vegetatively that would trigger follow-up; no plants exhibiting these characters were observed; no further surveys recommended. Impacts not anticipated.
Atriplex coronata var. *coronata* Crownscale	CRPR 4.2	March-October	Small areas of suitable soils present in alkaline areas in northwestern portion of Project Footprint. Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Atriplex coronata var. *vallicola* Lost Hills crownscale	CRPR 1B.2	April-September	Small areas of suitable soils present in alkaline areas in northwestern portion of Project Footprint. Survey conducted at appropriate time. Species was observed on Telecommunications Route but not Project Footprint; see text for avoidance and impact discussion.
Atriplex depressa Brittlescale	CRPR 1B.2	June-October	Based on known range, species very unlikely. No impacts anticipated.
Atriplex joaquiniana (=*Extriplex joaquiniana*) San Joaquin spearscale	CRPR 1B.2	April-September	Small areas of suitable soils present in alkaline areas in northwestern portion of Project Footprint. Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Atriplex minuscula Lesser saltscale	CRPR 1B.1	April-October	Small areas of suitable soils present in alkaline areas in northwestern portion of Project Footprint. Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated

Species	Status	Flowering Period	Comments
Atriplex subtilis Deltoid bract saltbush	CRPR 1B.2	June-October	Artificial saline impoundments located in the northwestern portion of Project Footprint represent potentially suitable habitat. Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated
Blepharizonia plumosa Big tarplant	CRPR 1B.1	July-November	Suitable dry slopes present in northwestern portion of Project Footprint. Although flowering period for this species is published as July, another species, B. laxa, was observed on Telecommunications Route. Given this observation, it is assumed that this species would have also been identifiable at the time of the survey and it was not observed. In addition, certain characteristics are identifiable vegetatively that would trigger follow-up; no plants exhibiting these characters were observed; no further surveys recommended. No impacts are anticipated.
California macrophylla Round leaved filaree	CRPR 1B.1	March-July	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Camissonia benitensis San Benito evening primrose	FT, CRPR 1B.1	April-June	Serpentine soils typical of species locations are not present. Impacts not anticipated.
Campanula exigua Chaparral harebell	CRPR 1B.2	May-June	No talus slopes or serpentine soil described as habitat for this species were present. No further surveys recommended. Impacts not anticipated.
Caulanthus californicus California jewelflower	FE, SE, CRPR 1B.1	February-April	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Caulanthus lemmonii Lemmon's wild cabbage	CRPR 1B.2	March-May	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Chorizanthe ventricosa Priest Valley spineflower	CRPR 4.3	May-September	No serpentine soils described as habitat for this species were present. No further surveys recommended. Impacts not anticipated.
Chloropyron molle ssp. *hispidum* Hispid bird's beak	CRPR 1B.1	June-September	No saline marshes or flats representing potential habitat for this species were present. No further surveys recommended. Impacts not anticipated.
Deinandra halliana Hall's tarplant	CRPR 1B.1	April-May	Potential habitat is present over most of the Project Footprint. Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated
Delphinium californicum ssp. *interius* California larkspur	CRPR 1B.2	April-June	*Delphinium* sp. was observed just northwest of the northwestern portion of the Project Footprint. *Delphinium gypsophilum* ssp. *gypsophilum* was previously documented near these locations and also southeast of the current Project Footprint. Two *Delphinium recurvatum* occurrences were previously documented near the western extent of the Project Footprint and also outside of the eastern boundary of the current Project Footprint. The *Delphinium* sp. observed during the early spring survey was revisited in May. Although a species determination was not
Delphinium gypsophilum ssp. *gypsophilum* Pinoche Creek larkspur		March-June	
Delphinium recurvatum	CRPR 1B.2	March-June	

Species	Status	Flowering Period	Comments
Recurved larkspur			made, all of the populations of Delphinium sp. were found to be outside of the Project Footprint; therefore, no impacts are anticipated. Five individual *Delphinium gypsophilum* ssp. *gypsophilum* plants were identified within a work area on the Telecommunications Route. Given the limited number of individuals that will be affected on the Project Footprint, these impacts would not be considered significant with the implementation of mitigation measures.
Eriastrum hooveri Hoover's eriastrum	CRPR 4.2	March-July	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Eriogonum gossypinum Cottony buckwheat	CRPR 4.2	March-September	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Eriogonum nudum var. *indictum* Naked buckwheat	CRPR 4.2	April-December	This taxon is a perennial that would have been identifiable to genus during the period of the survey. No perennial *Eriogonum* sp. were observed. No further surveys recommended. Impacts not anticipated.
Eriogonum temblorense Temblor buckwheat	CRPR 1B.2	April-September	The project site is outside of the known range and typical soils were not observed. No further surveys are recommended. Impacts not anticipated.
Eriogonum vestitum Idria buckwheat	CRPR 4.3	April-August	Barren gypsum clay slopes typical for this species not present on Project Footprint. No further surveys recommended. Impacts not anticipated.
Fritillaria falcata Talus fritillary	CRPR 1B.2	March-May	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Fritillaria viridea San Benito fritillary	CRPR 1B.2	March-May	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Lagophylla diabolensis Diablo Range hare leaf	CRPR 1B.2	April-September	Generally suitable soils are present over much of the Project Footprint. Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated
Layia discoidea Rayless layia	CRPR 1B.1	May	No serpentine soils described as habitat for this species were present. No further surveys recommended. Impacts not anticipated.
Layia heterotricha Pale yellow layia	CRPR 1B.1	March-June	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Layia munzii Munz's tidy tips	CRPR 1B.2	March-April	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Lepidium jaredii ssp. *album* Panoche pepper grass	CRPR 1B.2	February-June	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Leptosiphon ambiguus Serpentine leptosiphon	CRPR 4.2	March-June	Three locations previously identified within the Project Footprint were confirmed totaling approximately 10,000 plants. One population located partially outside of the Project Footprint (northern boundary) consisting of greater than 10,000 plants was confirmed. This plant is well-represented in the region with over 35 additional

Species	Status	Flowering Period	Comments
			collections recorded from within 20 miles of the Project Footprint. Although individuals will be impacted by project activities, impacts not significant with implementation of mitigation measures.
Madia radiata Golden madia	CRPR 1B.1	March-May	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Malacothamnus aboriginum Gray bushmallow	CRPR 1B.2	April-October	This taxon is a perennial that would have been identifiable to genus during the period of the survey. No perennial *Malacothamnus* sp. were observed. No further surveys recommended. Impacts not anticipated.
Monolopia congdonii San Joaquin woollythreads	FE, CRPR 1B.2	February-May	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.
Navarretia nigelliformis ssp. *radians* Adobe navarretia	CRPR 1B.2	April-July	*Navarretia* sp. was identified at two locations within the Project Footprint and three locations outside the Project Footprint. These locations were revisited and determined be neither of these special-status species. See plant list for further information.
Navarretia prostrata Prostrate navarretia	CRPR 1B.2	April-July	
Phacelia phacelioides Mt. Diablo phacelia	CRPR 1B.2	April-May	Open rocky slopes typical of this species were not observed on Project Footprint. No further surveys recommended. Impacts not anticipated.
Senecio aphanactis California groundsel	CRPR 2B.2	January-April	Five individual plants of this taxon were observed at four locations within the Project Footprint. Two locations with two and 50 individuals respectively were observed southeast and west of the Project Footprint on Conservation Lands. Given the limited number of individuals that will be affected on the Project Footprint, these impacts would not be considered significant with the implementation of mitigation measures.
Streptanthus insignis ssp. *lyonii* Arburua Ranch jewelflower	CRPR 1B.2	March-May	Survey conducted at appropriate time and species not observed; no further surveys recommended. Impacts not anticipated.

FE = Federally Endangered SE = State Endangered

CRPR = California Plant Rank (California Native Plant Society)
1B = Plants that are rare, threatened, or endangered in California and elsewhere 4 = A watch list; plants of limited distribution
0.1: Seriously endangered in California 0.2: Fairly endangered in California 0.3: Not very endangered in California

Sources: Jepson Flora Project (B. G. Baldwin, D. J. Keil, S. Markos, B. D. Mishler, R. Patterson, T. J. Rosatti, and D. H. Wilken editors). 2015. *Jepson eflora*, http://ucjeps.berkeley.edu/IJM.html [accessed March 2015 and October 2015]; CNPS Inventory of Rare, Threatened and Endangered Plants of California. 2015. http://www.rareplants.cnps.org/ [accessed March 2015 and October 2015].

Table 3.2: Plants Observed During Surveys Conducted March 3 to 13 and May 5 to 8, 2015 on the Panoche Valley Solar Project

major_clade	Family	Scientific name	Common name	nativity
Eudicots				
	Apiaceae (Carrot family)			
		Lomatium caruifolium var. *caruifolium*	Alkali desertparsley	Native
		Lomatium utriculatum	Common lomatium	Native
		Sanicula bipinnata	Poison sanicle	Native
		Sanicula bipinnatifida	Purple sanicle	Native
	Asteraceae (Aster family)			
		Achyrachaena mollis	Blow wives	Native
		Agoseris sp.	Agoseris	Native
		Agoseris heterophylla	Annual agoseris	Native
		Ancistrocarphus filagineus	False neststraw	Native
		Blepharizonia laxa	Glandular big tarplant	Native
		Chaenactis xantiana	Fleshcolor pincushion	Native
		Deinandra kelloggii	Kellogg's tarweed	Native
		Holocarpha virgata	Yellowflower tarweed	Native
		Lasthenia gracilis	Needle goldfields	Native
		Layia platyglossa	Coastal tidytips	Native
		Logfia filaginoides		Native
		Logfia gallica	Narrowleaf cottonrose	Naturalized
		Malacothrix coulteri	Snake's head	Native
		Matricaria discoidea	Pinapple weed	Naturalized
		Micropus californicus		Native
		Microseris douglasii	Douglas' silverpuffs	Native

major_clade	Family	Scientific name	Common name	nativity
		Microseris elegans	Elegant silverpuffs	Native
		Microseris sylvatica	Sylvan scorzonella	Native
		Monolopia lanceolata	Common monolopia	Native
		Psilocarphus brevissimus	Short woollyheads	Native
		Senecio aphanactis	Chaparral ragwort	Native
		Senecio flaccidus var. *douglasii*	Douglas' ragwort	Native
		Senecio vulgaris	Old-man-in-the-Spring	Naturalized
		Stephanomeria sp.	Wirelettuce	Native
		Uropappus lindleyi	Lindley's silverpuffs	Native
	Boraginaceae (Borage family)			
		Amsinckia intermedia	Common fiddleneck	Native
		Amsinckia menziesii	Menzies' fiddleneck	Native
		Amsinckia tessellata	Bristly fiddleneck	Native
		Pectocarya anisocarpa	Combseed (newly described)	Native
		Pectocarya penicillata	Short-leaf combseed	Native
		Phacelia ciliata	Great Valley phacelia	Native
		Phacelia distans	Distant phacelia	Native
		Phacelia tanacetifolia	Lacy phacelia	Native
		Plagiobothrys acanthocarpus	Adobe popcornflower	Native
		Plagiobothrys bracteatus	Bracted popcornflower	Native
		Plagiobothrys canescens var. *canescens*	Valley popcornflower	Native
		Plagiobothrys leptocladus	Finebranched popcornflower	Native
		Plagiobothrys nothofulvus	Rusty popcornflower	Native
		Plagiobothrys shastensis	Shasta popcornflower	Native
	Brassicaceae (Mustard family)			
		Athysanus pusillus	Common sandweed	Native

major_clade	Family	Scientific name	Common name	nativity
		Brassica nigra	Black mustard	Naturalized
		Capsella bursa-pastoris	Shepherd's purse	Naturalized
		Caulanthus inflatus	Desert candle	Native
		Lepidium dictyotum	Alkali pepperweed	Native
		Lepidium nitidum	Shining pepperweed	Native
		Sinapis arvensis	Charlock mustard	Naturalized
		Sisymbrium irio	London rocket	Naturalized
		Sisymbrium orientale	Indian hedgemustard	Naturalized
		Thysanocarpus curvipes	Sand fringepod	Native
		Thysanocarpus laciniatus	Mountain fringepod	Native
		Tropidocarpum gracile	Dobie pod	Native
	Caryophyllaceae (Pink family)			
		Herniaria hirsuta	Hairy rupturewort	Naturalized
		Stellaria media	Common chickweed	Naturalized
		Stellaria nitens	Shiny chickweed	Native
	Chenopodiaceae (Goosefoot family)			
		Atriplex coronata var. *vallicola*	Lost Hills saltbush	Native
		Atriplex fruticulosa	Ball saltbush	Native
		Atriplex polycarpa	Common saltbush	Native
		Monolepis nuttalliana	Nuttall's poverty weed	Native
		Salsola sp.	Russian thistle	Naturalized
	Convolvulaceae (Morning-glory family)			
		Convolvulus arvensis	Field bindweed	Naturalized
	Crassulaceae (Stonecrop family)			
		Crassula connata	Sand pygmyweed	Native
	Euphorbiaceae (Spurge family)			

major_clade	Family	Scientific name	Common name	nativity
		Croton setigerus	Dove weed	Native
		Euphorbia sp.	Spurge	unknown
	Fabaceae (Pea family)			
		Acmispon wrangelianus	Chilean bird's-foot trefoil	Native
		Astragalus gambelianus	Gambel's dwarf milkvetch	Native
		Lupinus bicolor	Miniature lupine	Native
		Lupinus succulentus	Hollowleaf annual lupine	Native
		Medicago polymorpha	Burclover	Naturalized
		Trifolium depauperatum var. *truncatum*	Truncate sack clover	Native
		Trifolium dichotomum	Branched Indian clover	Native
		Trifolium gracilentum	Pinpoint clover	Native
		Trifolium willdenovii	Tomcat clover	Native
	Geraniaceae (Geranium family)			
		Erodium brachycarpum	Shortfruit stork's bill	Naturalized
		Erodium cicutarium	Redstem stork's bill	Naturalized
		Erodium moschatum	Musky stork's bill	Naturalized
	Lamiaceae (Mint family)			
		Salvia columbariae	Chia	Native
		Trichostema lanceolatum	Vinegarweed	Native
	Loasaceae (Loasa family)			
		Mentzelia affinis	Yellowcomet	Native
	Malvaceae (Mallow family)			
		Eremalche parryi ssp. *parryi*	Parry's mallow	Native
		Malva parviflora	Cheeseweed mallow	Naturalized
	Molluginaceae (Carpet-weed family)			
		Mollugo verticillata	Whorled carpet-weed	Naturalized

major_clade	Family	Scientific name	Common name	nativity
	Montiaceae (Miner's lettuce family)			
		Calandrinia ciliata	Fringed redmaids	Native
		Claytonia parviflora	Streambank springbeauty	Native
	Myrtaceae (Myrtle family)			
		Eucalyptus globulus	Tasmanian bluegum	Naturalized
	Nyctaginaceae (Four o'clock family)			
		Mirabilis sp.	Four o'clock	need info
	Onagraceae (Evening Primrose family)			
		Clarkia sp.	Clarkia	Native
		Epilobium sp.	Willowherb	Native
		Eremothera boothii	Booth's evening primrose	Native
	Orobanchaceae (Broom-rape family)			
		Castilleja attenuata	Attenuate Indian paintbrush	Native
		Castilleja brevistyla	Shortstyle Indian paintbrush	Native
		Castilleja exserta	Exserted Indian paintbrush	Native
		Orobanche uniflora	Oneflowered broomrape	Native
	Papaveraceae (Poppy family)			
		Eschscholzia caespitosa	Tufted poppy	Native
		Eschscholzia californica	California poppy	Native
	Plantaginaceae (Plantain family)			
		Collinsia sp.	Blue eyed Mary	Native
		Plantago elongata	Prairie plantain	Native
		Plantago erecta	Dotseed plantain	Native
	Polemoniaceae (Phlox family)			
		Gilia clivorum	Purplespot gilia	Native
		Gilia tricolor	Bird's-eye gilia	Native

major_clade	Family	Scientific name	Common name	nativity
		Leptosiphon ambiguus	Serpentine leptosiphon	Native
		Leptosiphon bicolor	True babystars	Native
		Navarretia sp.[1]	Pincushionplant	Native
	Polygonaceae (Buckwheat family)			
		Chorizanthe membranacea	Pink spineflower	Native
		Eriogonum viridescens	Twotooth buckwheat	Native
		Eriogonum vestitum	Idria buckwheat	Native
		Rumex sp.	Dock	
	Primulaceae (Primrose family)			
		Dodecatheon clevelandii ssp. *patulum*		Native
	Ranunculaceae (Buttercup family)			
		Delphinium sp.	Larkspur	Native
		Delphinium gypsophilum	Pinoche Creek larkspur	Native
		Ranunculus aquatilis	White water crowfoot	Native
	Saxifragaceae (Saxifrage family)			
		Micranthes californica	California saxifrage	Native
	Valerianaceae (Valerian family)			
		Plectritis ciliosa	Longspur seablush	Native
Monocots				
	Alliaceae (Onion family)			
		Allium sp.	Onion	Native
		Allium howellii var. howellii	Howell's onion	Native
	Poaceae (Grass family)			
		Avena barbata	Lopsided oat	Naturalized
		Avena fatua	Wild oat	Naturalized

major_clade	Family	Scientific name	Common name	nativity
		Bromus carinatus var *carinatus*	California brome	Native
		Bromus diandrus	Ripgut brome	Naturalized
		Bromus hordeaceus	Soft brome	Naturalized
		Bromus madritensis	Compact brome	Naturalized
		Bromus racemosus	Bald brome	Naturalized
		Bromus sterilis	Poverty brome	Naturalized
		Festuca bromoides	Brome fescue	Naturalized
		Festuca microstachys	Pacific fescue	Native
		Festuca myuros		Naturalized
		Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Naturalized
		Hordeum murinum	Mouse barley	Naturalized
		Lamarckia aurea	Goldentop grass	Naturalized
		Poa annua	Annual bluegrass	Naturalized
		Poa secunda	Sandberg bluegrass	Native
		Triticum aestivum	Common wheat	Naturalized
	Themidaceae (Brodiaea family)			
		Brodiaea terrestris ssp. *kernensis*		Native
		Dichelostemma capitatum	Bluedicks	Native
		Muilla maritima	Sea muilla	Native

1 The identification of the *Navarretia* sp. found in the survey area was determined to be *N. mitracarpa* based on flowers but *N. pubescens* based on bract characteristics. Upon further inquiry, Leigh Johnson, author of the Navarretia account in The Jepson Manual (Johnson 2013), confirmed that work is ongoing describing a new taxon (Johnson, pers. comm).

Participating Botanists:

Marcus Jones, Ed Kentner, Russell Kokx, Eve Laeger, Randi McCormick, Gene Moise, Keir Morse, and Jordan Zylstra

5.0 References

Alarcón M., Aedo, C., & Navarro, C. (2012). California filaree, In Jepson Flora Project (Eds.) Jepson eFlora. Retrieved from http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=80427

CDFW, Natural Diversity Database. (2015). Special vascular plants, bryophytes, and lichens list. Quarterly publication. April. 144 pp.

CDFW, Natural Diversity Database. (2015). State and federally listed endangered, threatened, and rare plants of California. April. 7 pp.

California Native Plant Society (CNPS). CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed March and October 2015].

Hickman, L.R. (1993). The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, California. 1400 pp.

Jepson Flora Project (eds.) (2013). Jepson eFlora, http://ucjeps.berkeley.edu/IJM.html

Johnson, L. A. (2013). Navarretia, Revision 1, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=34472, accessed on Oct 13 2015.

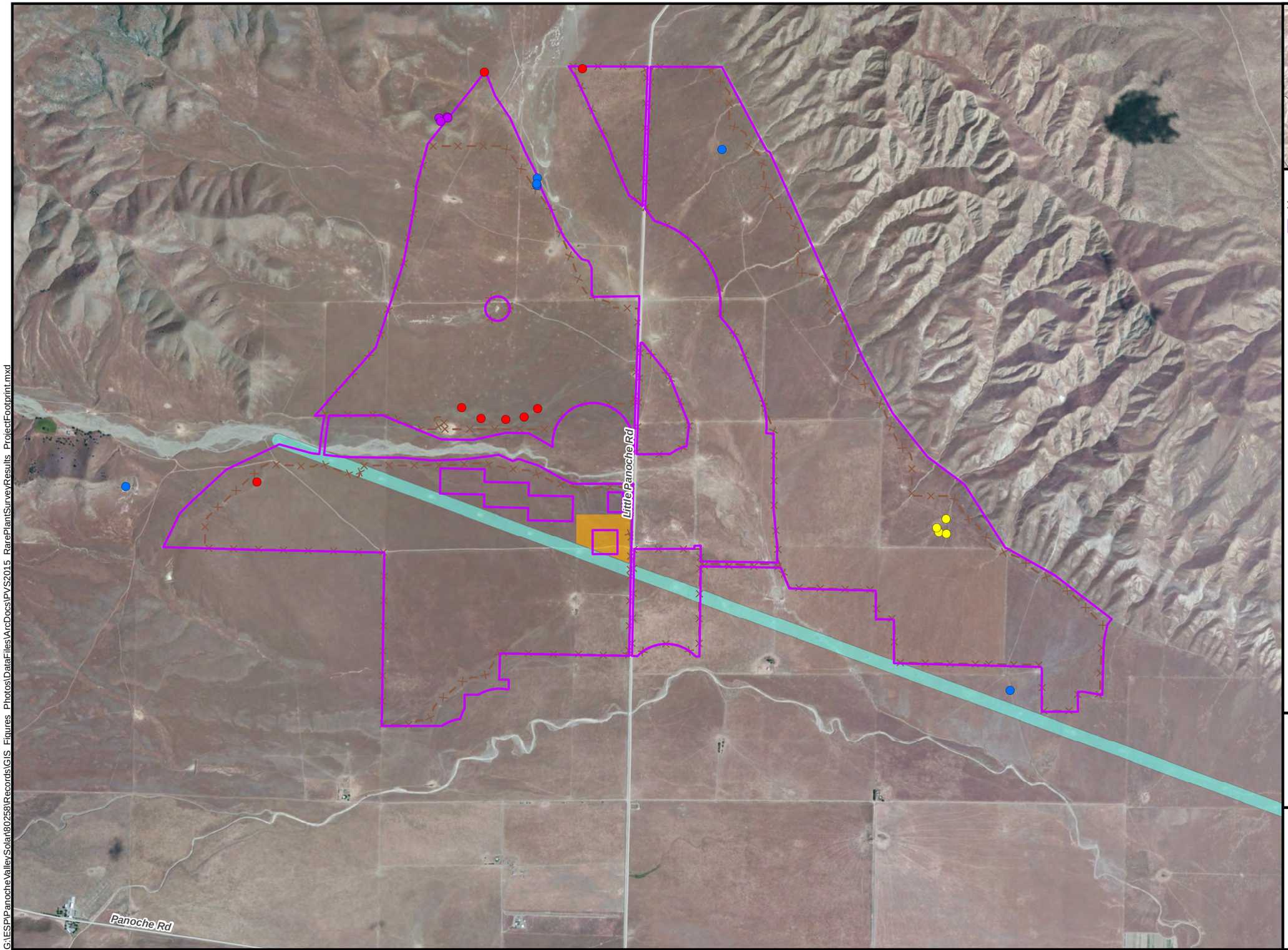
McCormick Biological, Inc. (2015). Early spring rare plant surveys of Panoche Solar Project Footprint and PG&E Telecommunications Route. Memorandum to Jennifer Kaminsky, Burns and McDonnell Engineering Company, Inc. dated 24 March 2015. 13pp.

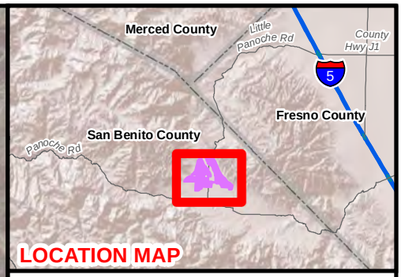
Live Oak Associates. (2009). Late summer/early fall rare plant surveys for the Panoche Valley Solar Farm project in San Benito County, California. Letter from D. Ohlson to E. Cherniss, dated November 24, 2009.

Live Oak Associates. (2010). Early spring rare plant surveys for the Panoche Valley Solar Farm project in San Benito County, California. Letter from D. Ohlson to E. Cherniss, dated June 4, 2010.

Paulus, J. (2010). Delphinium found within the Panoche survey area. Memorandum to D. Ohlson, date May 3, 2010.

Figures





LEGEND

- PVS Perimeter Fence
- PVS Project Footprint
- Switchyard ROW
- Transmission ROW

Rare Plant Location

- *Amsinckia furcata*
- *Delphinium* sp.
- *Leptosiphon ambiguus*
- *Senecio aphanactis*

NORTH

0 1,000 2,000 4,000

SCALE IN FEET

BURNS McDONNELL

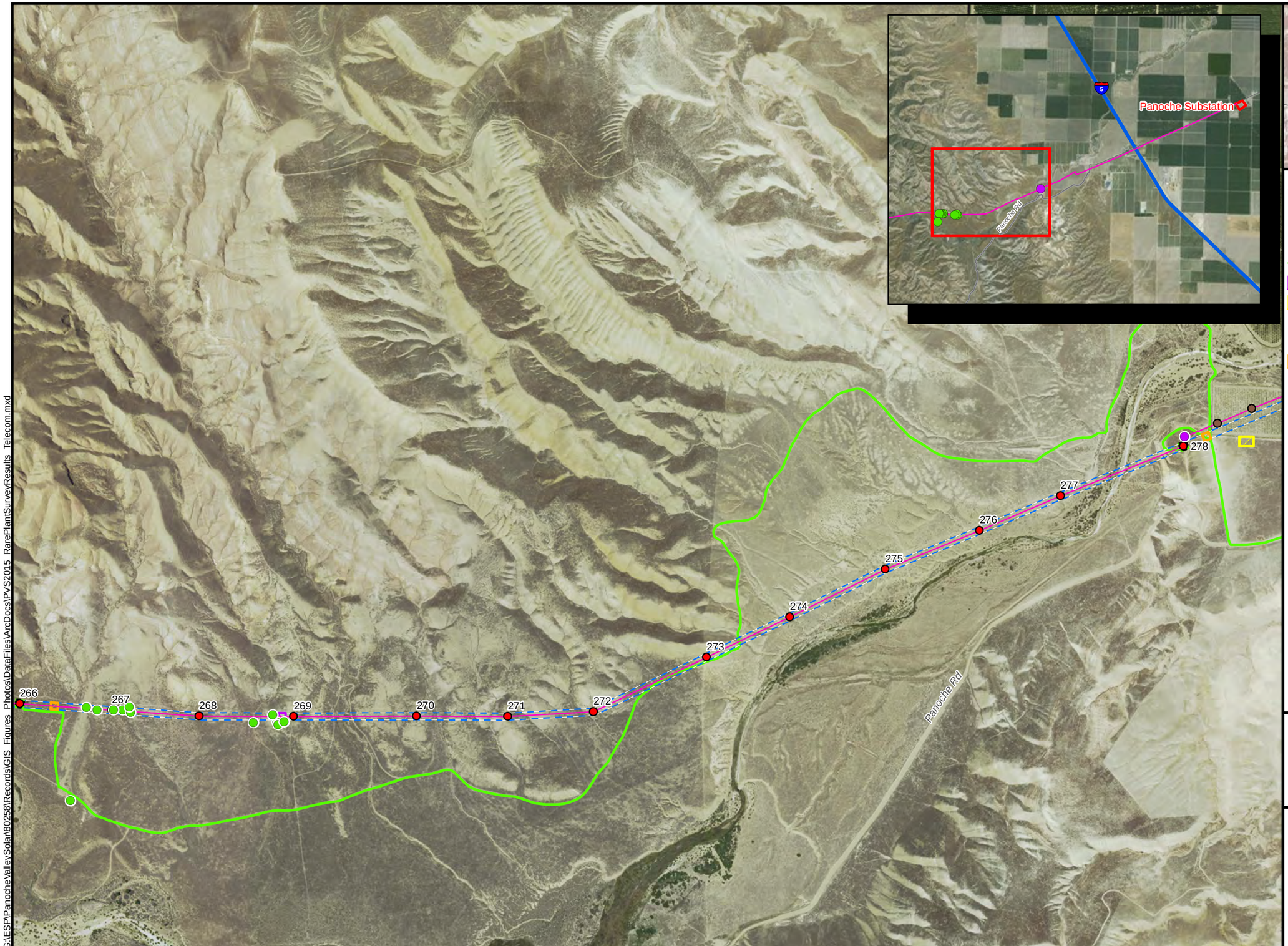
3.1 Panoche Valley Solar Project 2015

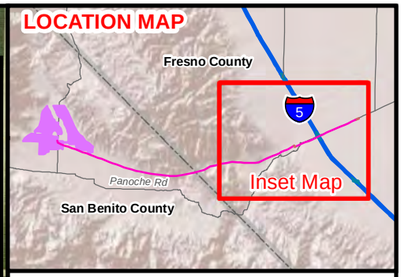
RARE PLANT SURVEY RESULTS

PROJECT FOOTPRINT

G:\ESP\PanocheValleySolar\802581\Records\GIS_Figures_Photos\DataFiles\ArcDocs\PVS2015_RarePlantSurveyResults_ProjectFootprint.mxd

Date: 10/16/2015 twong





LEGEND

- Existing 12kV Poles for ADSS
- Existing Structures
- OPGW
- Access Route
- Guard Structure
- Helicopter Landing Zone
- PVS Project Footprint
- ROW
- Wire Stringing Site

Rare Plant Location

- *Atriplex coronata* var. *vallicola*
- *Delphinium* sp.

NORTH

0 500 1,000 2,000

SCALE IN FEET

BURNS McDONNELL

3.2 Panoche Valley Solar Project 2015

RARE PLANT SURVEY RESULTS

TELECOMMUNICATIONS ROUTE

G:\ESP\PanocheValleySolar\802581\Records\GIS_Figures_Photos\DataFilesArcDocs\PVS2015_RarePlantSurveyResults_Telecom.mxd

Date: 10/16/2015 twong

Panoche Valley Solar

Blunt-nosed Leopard Lizard Survey Report

Panoche Valley Solar Project
San Benito County, California
August 2015

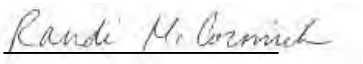
Prepared for:
Panoche Valley Solar
845 Oak Grove Ave, Suite 202
Menlo Park, CA 94025

Prepared by:
Energy Renewal Partners, LLC
305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746

And

McCormick Biological, Inc.
4031 Alken St. Suite B-1
Bakersfield, California 93308

Date:
August 2015



Randi McCormick
Principal Biologist

Trisha Elizondo
Project Manager

Table of Contents

FIGURES

TABLES

APPENDICES

1.0 Project Overview

This report documents the survey results for focused blunt-nosed leopard lizard (*Gambelia sila*; BNLL) studies conducted for the Panoche Valley Solar Project (the Project). Panoche Valley Solar LLC (PVS, the Applicant) is proposing to construct and operate a 247-megawatt (MW) solar photovoltaic energy generating facility in San Benito County, California (Figure 1).

The Project is located approximately three-quarters of a mile north of the intersection of Panoche Road and Little Panoche Road, in eastern San Benito County. The Project Footprint is located approximately two miles southwest of the Fresno County Line and the Panoche Hills, and approximately 15 miles west of Interstate 5 and the San Joaquin Valley (Figure 1). The Project Footprint is comprised of approximately 2,506 acres of heavily grazed land in the Panoche Valley along with 24,176 acres of Conservation Lands. The 2,514 acre Valley Floor Conservation Lands (VFCL) are contiguous with the Project Footprint, and are made up of primarily non-native annual grassland habitat, with some seasonal ponds and vernal and ephemeral pools, as well as segments of the seasonally dry Panoche and Las Aguilas Creeks. The 10,889 acre Silver Creek Ranch Conservation Lands (SCRCL) are located adjacent south and east of the VFCL and the 10,773 acre Valadeao Ranch Conservation Land (VRCL) is located adjacent northwest, north, and east of the Project Footprint.

The BNLL surveys described in this report were conducted on the Project Footprint and on portions of the Conservation Lands at various times and intervals between 2009 and 2015. Several surveys have been completed targeting BNLL detection on the Project Footprint. Additional surveys targeting other species that were conducted under conditions suitable for BNLL observation and/or during which BNLL were incidentally detected have also been completed. Efforts included both full protocol surveys and abbreviated surveys conducted under protocol conditions. This report provides a summary of each of the survey efforts, survey methods, and results. As currently designed, BNLL have not been observed on the Project Footprint during any of the survey events.

2.0 Background

The BNLL is currently listed as endangered by the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.) and the California Endangered Species Act (Fish and Game Code §§ 2050 et seq). It is also a Fully Protected species under California Fish and Wildlife Code Section 5050. No critical habitat has been designated for the BNLL. The BNLL is included in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). This lizard is found in Merced, Madera, Fresno, San Benito, Kings, Tulare, Kern, San Luis Obispo, Santa Barbara, and Ventura counties of the San Joaquin Valley and valleys of the coastal mountain ranges (CDPR 1997 and USFWS 2010).

This *Iguanidae* species is a relatively large lizard with a long tail, powerful hind limbs, and a short, blunt snout. The underside of this lizard is uniformly white with a variation in colors and patterns on the back. Males are typically larger in size and weight than females. Adult BNLL are between 3.4 to 4.7 inches in length (snout to vent) with a typical weight between 0.8 and 1.5 ounces. BNLL mainly utilize occupied or abandoned rodent burrows (often *Otospermophilus beecheyi* and *Dipodomys* spp.) for shelter from predators and inclement weather. However the BNLL will construct shallow tunnels in earth berms or under rocks in areas of low mammal burrow density. The BNLL typically prefers to inhabit open, sparsely vegetated areas such as non-native grasslands, valley saltbush scrub and valley sink-scrub communities with low relief. Valley needlegrass grasslands and alkali playas also provide suitable habitat for BNLL (CDPR 1997 and USFWS 2010). BNLL are mainly insectivorous, eating a variety of grasshoppers, cicadas, crickets, and moths. However, they seem to feed opportunistically on animals, eating whatever is available in the size range they can overcome and swallow such as the common side-blotched lizard (*Uta stansburiana*) (USFWS 2010).

The following surveys have been conducted on the Project Footprint targeting detection of BNLL or targeting other species that have included incidental observations of BNLL. The areas covered by each survey are illustrated in Figures 2 - 12.

TABLE 1: SURVEYS CONDUCTED FOR THE PROJECT DURING EITHER APPROPRIATE SURVEY PERIOD FOR BNLL OR CONDITIONS DURING WHICH BNLL COULD BE INCIDENTALLY OBSERVED

SURVEY TARGET	SURVEY DESCRIPTION	DATES	LANDS SURVEYED
BNLL	Abbreviated BNLL surveys conducted under CDFG (2004) protocol time and weather conditions on portions of 2,560+ acres: 3.5 transect iterations on Section 15 (640 acres); 8 transect iterations on Section 10 during Adult BNLL survey period; 5 transect iterations on Sections 10 and 15 during hatchling BNLL survey period; BNLL surveys on part of Section 9.	April 15, 2009 – July 31, 2009; and August 15, 2009 – September 15, 2009	Project Footprint and VFCL (see Figure 2)
Rare Plant I (Late Summer/Early Fall)	Protocol-level rare plant surveys on all or portions of Sections 3-5, 7-11, 13-17 of Township 15 South, Range10 East and Sections 18 and 19 of Township 15 South, Range 11 East; 6,200 acres of the original 10,000-acre Project Footprint	August17-19, 24-26, 2009; September 14-18, 21-25, 2009; and September 30-October 2, 2009	Project Footprint and VFCL (see Figure 3)
Multiple Species	Distance Sampling: Surveying for burrows and special status species along transects spaced at 350 meters on the Project Footprint, VFCL and VRCL	February 18, 2010 - March 18, 2010	Project Footprint, VFCL, and VRCL (See Figure 4)
BNLL	Surveys following CDFG (2004) protocol on Section 16 (640 acres).	April 15, 2010 – July 31, 2010; and August 15, 2010 – September 15, 2010	Project Footprint and VFCL (see Figure 5)

SURVEY TARGET	SURVEY DESCRIPTION	DATES	LANDS SURVEYED
Multiple Species	Occupancy Sampling: Surveying for special status species within 5-acre plots over 5 survey periods (50 meter radius plots for GKR)	May 10, 2010 - July 27, 2010	Project Footprint and VFCL (see Figure 6)
Multiple Species	Reconnaissance surveys on the Silver Creek Ranch: Meandering transects to detect special status species, suitable habitat for these species, and spotlight surveys for SJKF	August 30, 2010 - September 3, 2010	SCRCL (See Figure 7)
BNLL	Focused BNLL surveys within drainages on the 10,889-acre SCRCL; following time of day and weather parameters in CDFG (2004).	September 10, 2012– September 17, 2012	SCRCL (See Figure 8)
BNLL	Surveys following CDFG (2004) protocol for detection of BNLL; on entire Project Footprint and portions of the VFCL	May 9, 2013 - July 13, 2013; and August 2, 2013 - September 10, 2013	Project Footprint, portions of VFCL (See Figure 9)
Giant Kangaroo Rat	GKR focused surveys (100 50-meter radius plots) on the SCRCL in source population polygons identified in Figure 41 of the Recovery Plan (USFWS 1998).	September 10, 2010 – September 21, 2012	SCRCL (See Figure 10)
BNLL	Approximately 550 acres on Project Footprint and 220 acres on the VFCL* were surveyed; 5 iterations during BNLL adult period and 5 iterations during hatchling period. Surveys were conducted under weather and time of day conditions, and dates prescribed by CDFG (2004)	May 21, 2014 - May 29, 2014; and August 4, 2014- August 10, 2014	Project Footprint and VFCL (see Figure 11)

SURVEY TARGET	SURVEY DESCRIPTION	DATES	LANDS SURVEYED
Early Season Rare Plants	Entire Project Footprint plus 100-foot buffer was surveyed (2,608 acres)	March 3, 2015 – March 13, 2015	Project Footprint (plus approximately 50 acres in VRCL and VFCL)
BNLL	Approximately 640 acres on Project Footprint* and 82 acres on the VFCL were surveyed; 5 iterations during BNLL adult period and 4 iterations during hatchling period. Surveys were conducted under weather and time of day conditions, and dates prescribed by CDFG (2004)	May 25 and June 29, 2015; and hatchling surveys are in progress	Project Footprint and VFCL (See Figure 12)

*Proposed focused survey areas were discussed with and submitted to CDFW prior to beginning surveys

3.0 Survey Methodology

3.1 BNLL Abbreviated Surveys (2009 and 2010)

The BNLL abbreviated surveys in 2009 and 2010 included the Project Footprint and portions of the VFCL for both adult and hatchling BNLL. The surveys were conducted by Live Oak Associates (LOA) utilizing Level I and Level II surveyors.

The adult BNLL surveys conducted in 2009 were completed between June 10, 2009 and July 15, 2009. The 2009 hatchling/sub-adult BNLL surveys were completed between August 3, 2009 and September 1, 2009. Both adult and hatchling surveys were conducted consistently with weather and time conditions prescribed in CDFW *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFW 2004) protocols. The surveys conducted in 2009 consisted of sampling portions of the Project Footprint and VFCL areas that were judged to have high potential for BNLL including:

- 3.5 transects of adult-BNLL surveys completed on Section 15 between June 10, 2009 and July 15, 2009
- 8 transects of adult-BNLL surveys completed on Section 10 between June 10, 2009 and July 15, 2009
- 5 transects of hatchling/sub-adult-BNLL surveys completed on Sections 10 and 15 between August 3, 2009 and September 1, 2009

No BNLL were observed in Section 10 at any time during the 2009 surveys. The areas surveyed in 2009 are illustrated on Figure 2

In late April of 2010, the Applicant initiated both abbreviated- adult season BNLL surveys following weather and time of day protocols per CDFG (2004) on Section 16 (covering portions of both the Project Footprint and the VFCL) (Figure 5) and dynamic occupancy sampling within 135 sample locations (each point was buffered by five acres or two hectares) spread over the entire Project Footprint and VFCL (Figure 4). Occupancy sampling followed weather and time of day protocols per CDFG (2004) to target detection of BNLL in addition to other species. Both types of surveys were repeated five times between April and July 15, 2010.

Two adults were detected in Section 10, within the 100-year floodplain of Las Aquilas Creek, during the occupancy sampling conducted in 2010. The adult BNLL found in Section 15 were in association with Panoche and Las Aquilas Creeks. Hatchling BNLL were found along washes and farther into the upland habitat. Adult BNLL were observed in and near Panoche Creek in Sections 10, 14, 15, and 16 (Figure 14 during 2010 surveys.

One hundred and five observations of BNLL were recorded during the 2009 and 2010 surveys (Figures 13 and 14). The data included adult and hatchling/sub-adult observations within protocol parameters, as well as miscellaneous and out of survey protocol observations.

3.2 BNLL Focused Surveys (2012)

Surveys intended to document BNLL presence on SCRCL were conducted from September 10, 2012 through September 17, 2012. Surveys were conducted by LOA utilizing teams of three Level I and Level II surveyors. Each team surveyed drainages, with one biologist walking in the drainage and two biologists on either side. Focused BNLL surveys were conducted according to specifications within the BNLL survey protocol except that drainages were targeted and surveys were conducted on September 17, 2012 (two days past the protocol dates). However, the lead biologist for the survey determined that the weather was still warm enough to continue with surveys, as evidenced by incidental BNLL sightings through September 21, 2012. During BNLL focused surveys, hatchling BNLL were observed within drainages, on hill slopes, and even on top of rocks on top of ridges. In addition, BNLL were incidentally observed during GKR focused surveys from September 11, 2012 through September 21, 2012. Thirty-one BNLL were observed during focused surveys for BNLL and there were 30 incidental BNLL detections during GKR focused surveys. A total of 61 BNLL detections occurred in a two-week period. All BNLL observed were hatchlings except for two subadults. No BNLL were observed within the Project Footprint at any time during the 2012 surveys.

3.3 BNLL Protocol Surveys (2013)

The adult season BNLL survey was conducted on the Project Footprint and portions of the VFCL (Figure 9). Survey methodology was based on the CDFW Approved Survey Methodology for the Blunt-nosed Leopard Lizard (CDFG 2004), the letter "Updated Blunt-nosed Leopard Lizard (BNLL) Survey Methodology" dated May 2, 2013 to CDFW, verbal conversations with Dave Hacker of CDFW and Patrick Golden of Energy Renewal on June 26, 2013, and email correspondence between CDFW and Duke Energy on June 27, 2013. Surveys were conducted by Energy Renewal Partners and McCormick Biological, Inc. utilizing Level I and Level II surveyors.

Adult BNLL season surveys on the Project Footprint and portions of the VFCL were conducted between May 9, 2013 and July 13, 2013, which is within the approved survey window of April 15 to July 15. The adult BNLL surveys were accomplished by completing 12 iterations of preset 30 meter transects within the Project Footprint and portions of the VFCL. The adult BNLL surveys consisted of 58 days of fieldwork. Iterations of the survey were tracked by transect completions.

Hatchling season surveys on the Project Footprint and portions of the VFCL were conducted August 2, 2013 through September 10, 2013, which is within the approved survey window of August 1 to September 15. The hatchling BNLL surveys were accomplished by completing five iterations of preset parallel transects spaced 30 meters apart within the Project Footprint and portions of the VFCL. The hatchling BNLL surveys consisted of 35 days of field work.

Surveys were conducted within the protocol's temperature window of 77.0 degrees Fahrenheit (°F) to 95°F or 25° to 35° Celsius, with the exception of four occasions during the entire survey (from July 4, 2013 to July 7, 2013). During these four days, the standard temperature protocol was exceeded, after

verbal discussions with CDFW on June 26, 2013 (followed with email correspondence), to allow surveys to continue to 97°F as long as a reference BNLL was located by a Level II surveyor and observed between 95°F and 97°F. Survey activities that took place during exceeded temperatures were limited to short time periods (generally less than one hour) on each of the four days. Surveys were not conducted when weather conditions onsite were outside of other protocol limits (i.e. 90% cloud cover, sustained >10 miles-per-hour). Field data associated with potential prey items for BNLL were not recorded during 2013 surveys; however, invertebrates, such as grasshoppers, were observed to be present within all areas surveyed.

The BNLL survey crews consisted of no more than three Level I field surveyors for every Level II field surveyor. This requirement reduced the potential for incorrect or missed identifications. Level I field surveyors demonstrated the ability to distinguish BNLL from other common lizard species that may occur on the Project Footprint. Level II field surveyors demonstrated the ability to distinguish BNLL from other common lizard species that may occur on the Project Footprint and had participated previously in at least 50 survey days for BNLL with a minimum of one confirmed identification in the field.

Survey crews consisted of between five to 30 surveyors per day with an average of 15 throughout the adult survey season, and an average of approximately 14 surveyors per day throughout the hatchling survey season. As per the protocol, the surveyors walked preset parallel transects at a width of approximately 30 meters. The final (12th) iteration was completed on July 13, 2013 for the adult BNLL survey and the final (5th) iteration was completed on September 10, 2013 for the hatchling survey, resulting in 100% coverage of the Project Footprint and a significant portion of the VFCL for the 2013 survey season.

All BNLL observations were recorded using handheld global positioning system (GPS) devices and observations were categorized by sex (male or female, if characteristic features observed) and age class. Hatchlings consisted of the young of the year. An attempt was not made to differentiate between hatchlings and juveniles. All other BNLL were classified as adults. Additional information such as temperature, wind speed, and surrounding habitat descriptions were noted, if available. A total of 40 BNLL observations were made during the 2013 Protocol BNLL Survey (Figure 15). No BNLL were observed on the Project Footprint at any time during the 2013 surveys.

3.4 BNLL Abbreviated Survey (2014)

The BNLL abbreviated survey in 2014 was completed within the central portion of the Project Footprint and included portions of the VFCL (Figure 11). Surveys were completed by Energy Renewal Partners and McCormick Biological, Inc. The total acreage covered during the 2014 abbreviated BNLL survey was approximately 550 acres on the Project Footprint and 220 acres on the VFCL. Survey methodology generally followed the CDFW *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFW 2004) with the exception of the number of iterations of transects completed.

Abbreviated adult BNLL surveys were conducted between May 21, 2014 and May 29, 2014, which is within the CDFW approved survey window of April 15 to July 15. The 2014 abbreviated adult BNLL surveys were accomplished by completing five iterations of set 30 meter transects within the survey area. The adult BNLL surveys consisted of seven days of fieldwork.

Abbreviated hatchling season BNLL surveys were conducted between August 4, 2014 and August 10, 2014, which is within the CDFW approved survey window of August 1 to September 15. The 2014 abbreviated hatchling BNLL surveys were accomplished by completing 5 iterations of the set 30-meter transects (shifted by 15 meters on the second and fourth iterations). The abbreviated hatchling BNLL surveys consisted of seven days of fieldwork using all Level II surveyors.

During the adult and hatchling surveys, the surveys were not conducted when weather conditions onsite were out of protocol limits (i.e. >90% cloud cover, sustained >10 miles-per-hour). Surveys were also conducted within the protocol's temperature window of between 77°F to 95°F or 25° to 35° Celsius. In addition, surveys began after sunrise, as soon as the minimum air temperature criterion was met, and ended by 1400 hours or when the maximum temperature was reached, whichever occurred first. Field data associated with potential prey items for BNLL were not recorded during 2014 surveys; however, invertebrates, such as grasshoppers, were observed to be present within the survey area.

Survey crews consisted of eight to nine surveyors per day throughout the survey period. As per the protocol, the surveyors walked preset parallel transects at a width of approximately 30 meters. The abbreviated surveys resulted in 100% coverage of each survey polygon.

All BNLL observations were recorded using handheld GPS devices and observations were categorized by sex (male or female) and age class (adult, juvenile, or hatchling) if possible. Start and end temperature, wind speed, and other wildlife observations were noted. For reptile species identified, the number of individuals observed was recorded.

No BNLL were found within the survey area during the 2014 abbreviated survey. However, there were a total of seven reference observations of BNLL, including two in the VFCL (Figure 16) and five in the SCRCL to the east of the Project Footprint during the abbreviated surveys. These reference observations were made subsequent to the daily surveys to verify the activity of BNLL in the Panoche region.

3.5 BNLL Abbreviated Survey (2015)

The BNLL Abbreviated survey in 2015 was completed within the specified portions of the Project Footprint (see Figure 12). Surveys were completed by McCormick Biological, Inc. The total acreage covered during the 2015 abbreviated BNLL survey was approximately 640 acres on the Project Footprint, 82 acres on the VFCL (Telecom sites), and 144 acres at four additional survey areas (Telecom sites). Survey methodology generally followed the CDFW *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFW 2004) with the exception of the number of iterations of transects completed.

Abbreviated adult BNLL surveys were conducted between May 25, 2015 and June 29, 2015, which is within the CDFW approved survey window of April 15 to July 15. The 2015 abbreviated adult BNLL surveys were accomplished by completing five iterations of set 30 meter transects within the survey area. The adult BNLL surveys consisted of 23 days of fieldwork.

During the adult surveys, the surveys were not conducted when weather conditions onsite were out of protocol limits (i.e. >90% cloud cover, sustained >10 miles-per-hour). Surveys were also conducted within the protocol's temperature window of between 77°F to 95°F or 25° to 35° Celsius. In addition, surveys began after sunrise, as soon as the minimum air temperature criterion was met, and ended by 1400 hours or when the maximum temperature was reached, whichever occurred first.

Survey crews consisted of between two and six surveyors per day throughout the survey period. As per the protocol, the surveyors walked preset parallel transects at a width of approximately 30 meters. The abbreviated surveys resulted in 100% coverage of the each survey polygon.

All BNLL observations were recorded using handheld GPS devices and observations were categorized by sex (male or female) and age class (adult, juvenile, or hatchling) if possible. Start and end temperature, wind speed, and other wildlife observations were noted. For reptile species identified, the number of individuals observed was recorded. In addition, the relative number of invertebrate species observed that represented potential prey items for BNLL were recorded on surveys conducted between June 15 and June 29, 2015, based on a suggestion received from CDFW staff. In general, invertebrates, such as grasshoppers, were the prevalent prey item observed within the survey area. Relative abundance of prey items observed on each transect was classified as none, low (1-9), medium (10-99) or high (100+). Transects were variable in length; therefore, quantitative comparisons cannot be made. Transects generally fell within the low and medium categories, with very few transects classified as high relative abundance. See Table 4 for results recorded during the 2015 surveys.

Abbreviated hatchling season BNLL surveys are in the process of being conducted within the CDFW approved survey window of August 1 to September 15. The 2015 abbreviated hatchling BNLL surveys will be accomplished by completing four iterations of the set 30-meter transects (shifted by 15 meters on the second and fourth iterations). The abbreviated hatchling BNLL surveys will be completed by Level II surveyors.

No BNLL were found within the survey areas during the 2015 abbreviated surveys conducted to date. However, there were a total of seven reference observations of BNLL recorded on SCRCL to the east of the Project Footprint during the abbreviated surveys. These reference observations were made subsequent to the daily surveys to verify the activity of BNLL in the Panoche region.

4.0 Analysis and Results

Based on current design and engineering, no BNLL have been observed within the Project Footprint. There have been a total of 206 observations of BNLL in the Conservation Lands with a majority of the observations associated with the wash and floodplain habitats along Panoche Creek and Las Aguilas Creek and SCRCL.

The 2013 BNLL survey was conducted on the Project Footprint and portions of the VFCL and followed the CDFW *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFG 2004). Additional surveys completed between 2009 and 2015 were focused on areas of most likely occurrence on the Project Footprint with some additional site visits on the adjacent Conservation Lands. These surveys were conducted in general accordance with temperature and seasonal parameters but did not follow the full CDFW approved survey methodology.

5.0 Summary

Various surveys conducted under suitable conditions for observation of BNLL have been undertaken on the Project Footprint and on portions of the Conservation Lands between 2009 and 2015. The observations recorded during these surveys provide strong evidence that the current distribution of BNLL does not include the Project Footprint. A total of 206 observations have been made over six years since 2009 when the PVS project was first proposed and the permitting process initiated. During the surveys for BNLL and other surveys on the Project Footprint, BNLL have not been observed within the Project Footprint. Based on the recorded observations of this species, the current Project Footprint does not propose disturbance within approximately 850 feet of any BNLL observation.

6.0 References

California Department of Fish and Game [CDFG]. 2004. Approved Survey Methodology for the Blunt-nosed Leopard Lizard. May 2004

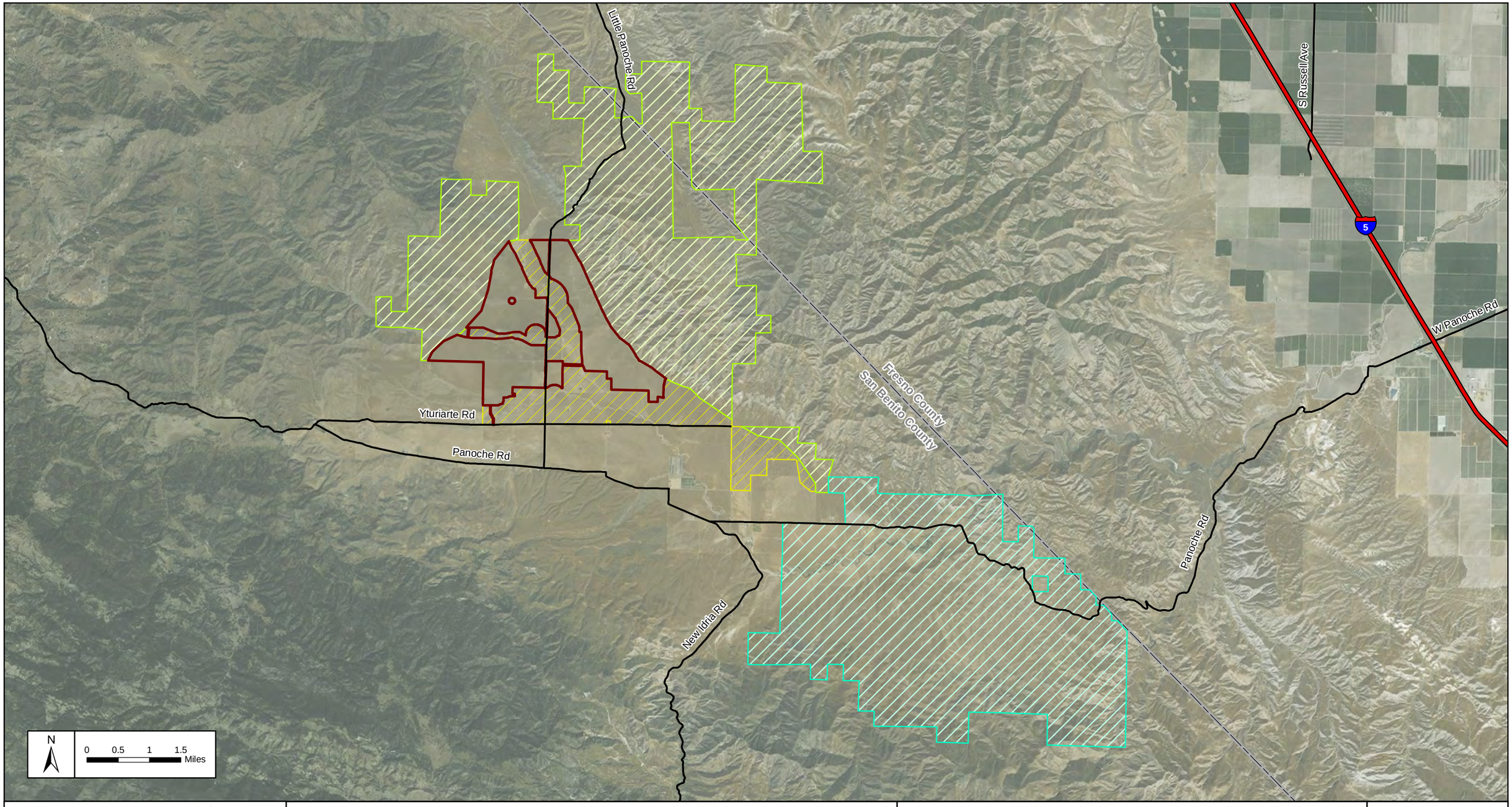
California Department of Pesticide Regulation [CDPR]. 1997. Blunt-Nosed Leopard Lizard Fact Sheet. Accessed online October 2013. www.cdpr.ca.gov/docs/endspec/espdfs/bnll1.pdf.

Live Oak Associates, Inc. [LOA]. 2010. Results of 2010 Adult and Juvenile BNLL Surveys Conducted on Section 16 of Township 15S, Range 10E for Solargen Energy's Panoche Valley Solar Farm. September 22, 2010.

U.S. Fish and Wildlife Service [USFWS]. 2010. Blunt-nosed leopard lizard (Gambelia sila) 5-year review, summary and evaluation. USFWS, Sacramento Fish and Wildlife Office, Sacramento, CA. Feb 2010. 79 pp.

U.S. Fish and Wildlife Service [USFWS]. 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California.

FIGURES



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- Valley Floor Conservation Lands
- Valadeao Ranch Conservation Lands
- Silver Creek Ranch Conservation Lands

Panoche Valley Solar Project

Project Area Overview

FIGURE

1

JH 2015-08-11

Survey Description

Focused surveys meeting protocol time, date, and temperature requirements for BNLL detection: 3.5 iterations Adult BNLL on Section 15; 8 iterations Adult BNLL on Section 10; 5 iterations juvenile BNLL surveys on Sections 10 and 15; BNLL surveys on part of Section 9

Survey completed by Live Oak Associates

Fresno County
San Benito County
Little Panoche Rd
Yturiarte Rd
Panoche Rd
Recalde Rd
N
0 0.25 0.5 Mile

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

Survey Area | Project Footprint | Valley Floor Conservation Lands

Panoche Valley Solar Project

Blunt-nosed Leopard Lizard (BNLL) Abridged Protocol Survey

April 15 - July 31 and August 15 - September 15, 2009

FIGURE

2

JH 2015-08-11

Survey Description

Protocol-level rare plant surveys on all or portions of Sections 3-5, 7-11, 13-17 of Township 15 South, Range10 East and Sections 18 and 19 of Township 15 South, Range 11 East; 6,200 acres of the original 10,000-acre Project site

Survey completed by Live Oak Associates

Fresno County
San Benito County
Little Panoche Rd
Yturiarte Rd
Recalde Rd
Panoche Rd
New Idria Rd
N
0 0.25 0.5 Mile

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

Survey Area *(historic project boundary)*

Project Footprint

Valley Floor Conservation Lands

Panoche Valley Solar Project

Rare Plant I Survey

August 17-19, 24-26; September 14-18, 21-25; and September 30 - October 2, 2009

FIGURE 3

JH 2015-08-11

Survey Description

Distance sampling (Surveying for burrows and special status species along 350 m transects)

Survey completed by Live Oak Associates

Fresno County
San Benito County
Yturiarte Rd
Panoche Rd
Recalde Rd
N
0 0.5 1 Mile

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

- Survey Area *(historic project and conservation lands boundaries)*
- Project Footprint
- Valley Floor Conservation Lands
- Valadeao Ranch Conservation Lands

Panoche Valley Solar Project

Distance Sampling

February 18 - March 18, 2010

FIGURE 4

JH 2015-08-11

Survey Description

Protocol-level BNLL surveys on 640 acres: Full adult and juvenile BNLL surveys on Section 16

Survey completed by Live Oak Associates

Little Panoche Rd

Yturiarte Rd

N

0 1,000 2,000 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com

Energy Renewal PARTNERS, LLC

Legend

Survey Area

Project Footprint

Valley Floor Conservation Lands

Panoche Valley Solar Project

Blunt-nosed Leopard Lizard Protocol Survey

April 15 - July 31 and August 15 - September 15, 2010

FIGURE

5

JH 2015-08-11

Survey Description

Occupancy sampling (Surveying for special status species within 5-acre plots over 5 survey periods (50 meter radius plots for GKR))

Survey completed by Live Oak Associates

Fresno County
San Benito County
Little Panoche Rd
Yturiarte Rd
Panoche Rd
Recalde Rd
N
0 0.25 0.5 Mile

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

Plot Location
Project Footprint
Valley Floor Conservation Lands

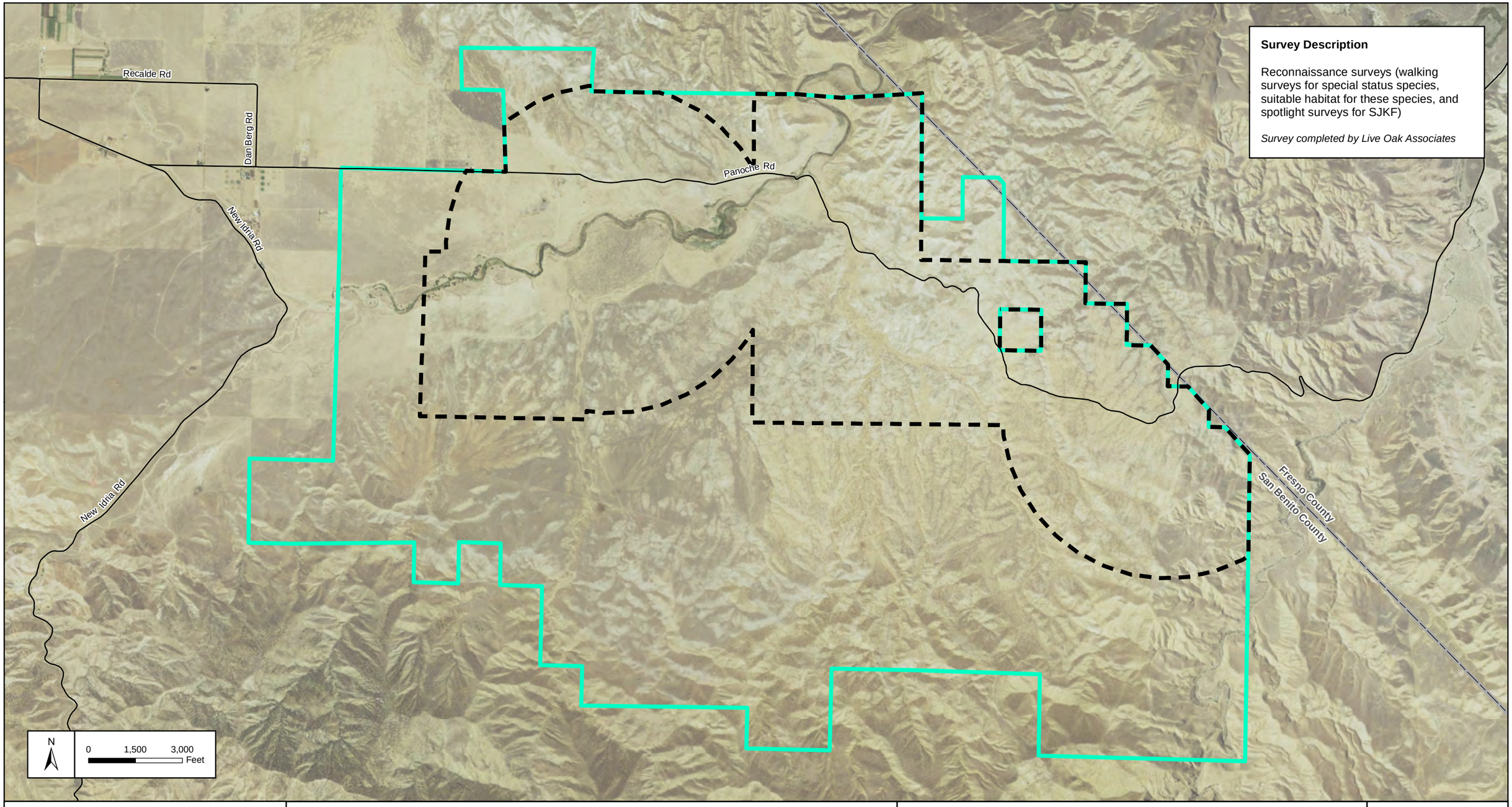
Panoche Valley Solar Project

Occupancy Sampling

May 10 - July 27, 2010

FIGURE 6

JH 2015-08-11



Survey Description

Reconnaissance surveys (walking surveys for special status species, suitable habitat for these species, and spotlight surveys for SJKF)

Survey completed by Live Oak Associates

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

Survey Area

Silver Creek Ranch Conservation Lands

Panoche Valley Solar Project

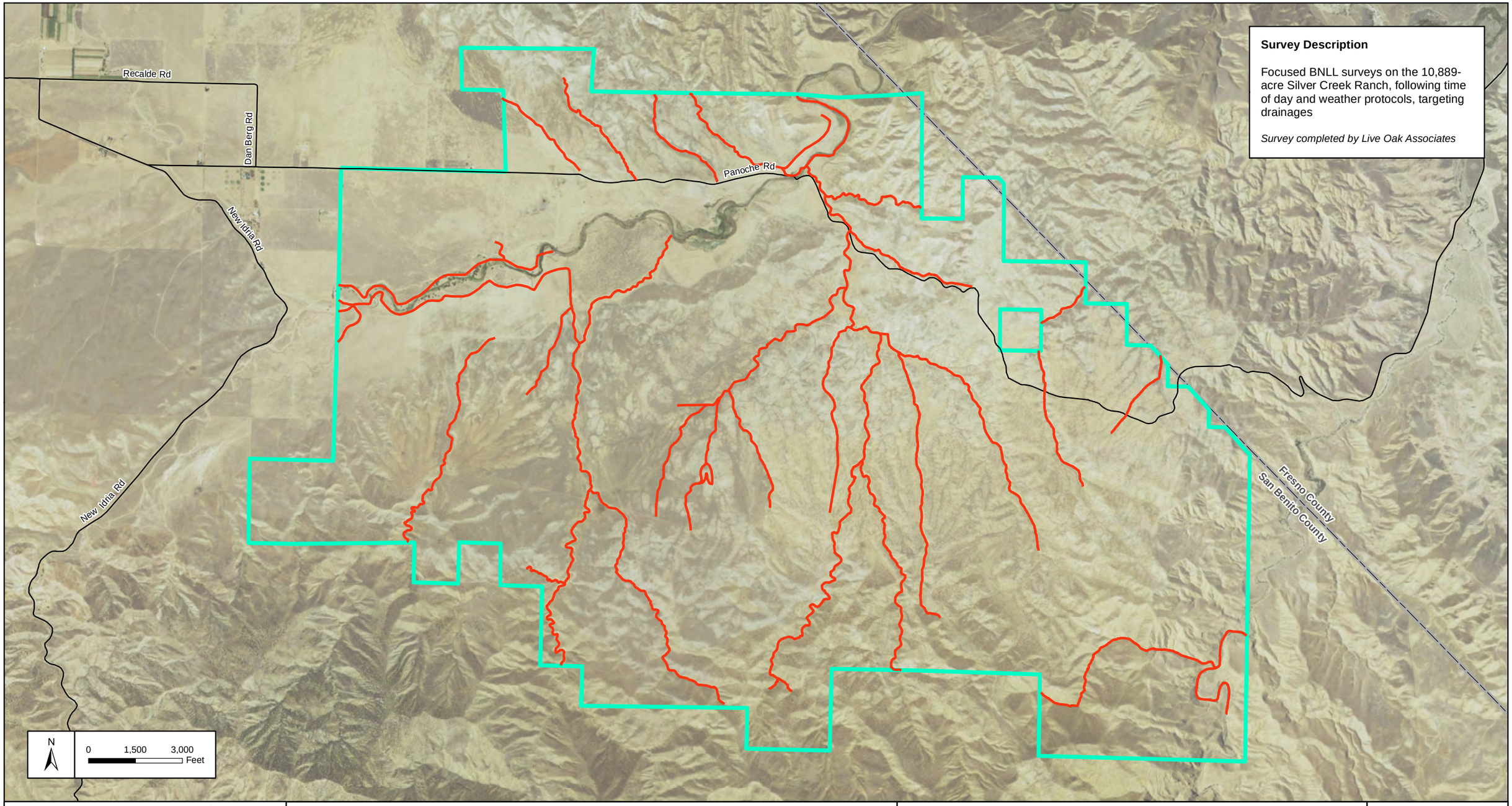
Reconnaissance Surveys on the Silver Creek Ranch

August 30 - September 3, 2010

FIGURE

7

JH 2015-08-11



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

Focused Survey Route

Silver Creek Ranch Conservation Lands

Panoche Valley Solar Project

Blunt-nosed Leopard Lizard Focused Survey

September 10-17, 2012

FIGURE

8

JH 2015-08-11

Survey Description

17-day Protocol-level BNLL surveys on the entire Project Footprint and portions of the Valley Floor CL

Survey completed by Energy Renewal Partners and McCormick Biological

Little Panoche Rd

Yturiarte Rd

N

0 1,000 2,000 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com

Energy Renewal
PARTNERS, LLC

Legend

Survey Area

Project Footprint

Valley Floor Conservation Lands

Panoche Valley Solar Project

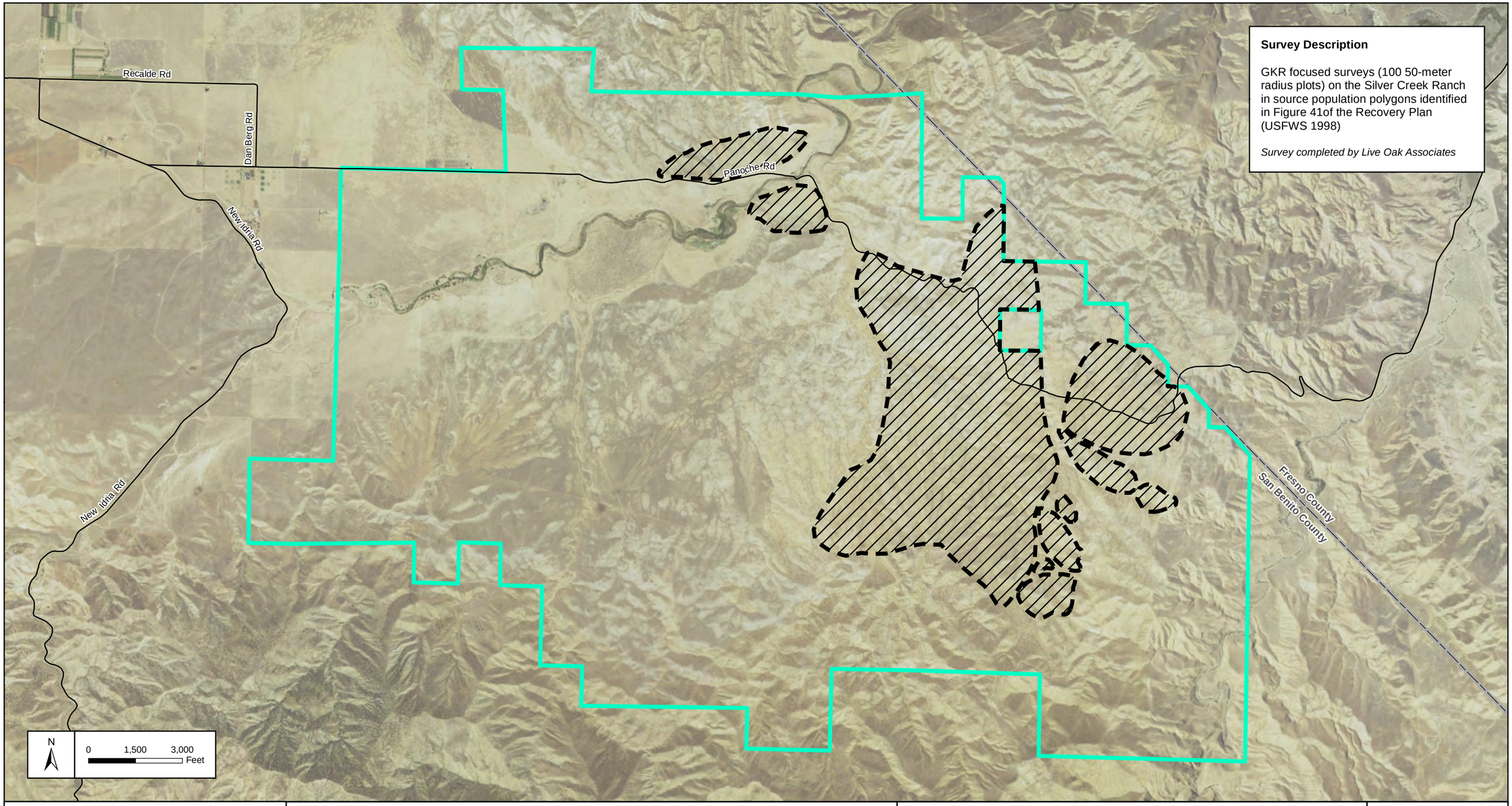
Blunt-nosed Leopard Lizard Protocol Survey

Spring and Summer 2013

FIGURE

9

JH 2015-08-11



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

Survey Area

Silver Creek Ranch Conservation Lands

Panoche Valley Solar Project

Giant Kangaroo Rat Focused Surveys

September 10-21, 2012

FIGURE

10

JH 2015-08-11

Survey Description

Focused surveys meeting protocol time, date, and temperature requirements consistent with CDFG (2004) methods for BNLL detection on portions of Project Footprint and the Valley Floor CL; repeated 5 times during adult season and 5 times during hatchling season

Survey completed by Energy Renewal

Little Panoche Rd

Yturiarte Rd

N

0 1,000 2,000 Feet

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com

Energy Renewal PARTNERS, LLC

Legend

Survey Area

Project Footprint

Valley Floor Conservation Lands

Panoche Valley Solar Project

Modified Blunt-nosed Leopard Lizard Protocol Survey

Spring and Summer 2014

FIGURE

11

JH 2015-08-11

Survey Description

Focused surveys meeting time, date, and temperature parameters consistent with CDFG (2004) methods for BNLL detection on portions of the Project Footprint and conservation lands, repeated 5 times between May 25 and June 30, 2015

Survey completed by McCormick Biological

Fresno County
San Benito County
Little Panoche Rd
Recalde Rd
Panoche Rd

N
0 0.5 1 Mile

305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal PARTNERS, LLC

Legend

- Survey Area
- Electric Transmission
- Project Footprint
- Valley Floor Conservation Lands
- Silver Creek Ranch Conservation Lands
- Valadeao Ranch Conservation Lands

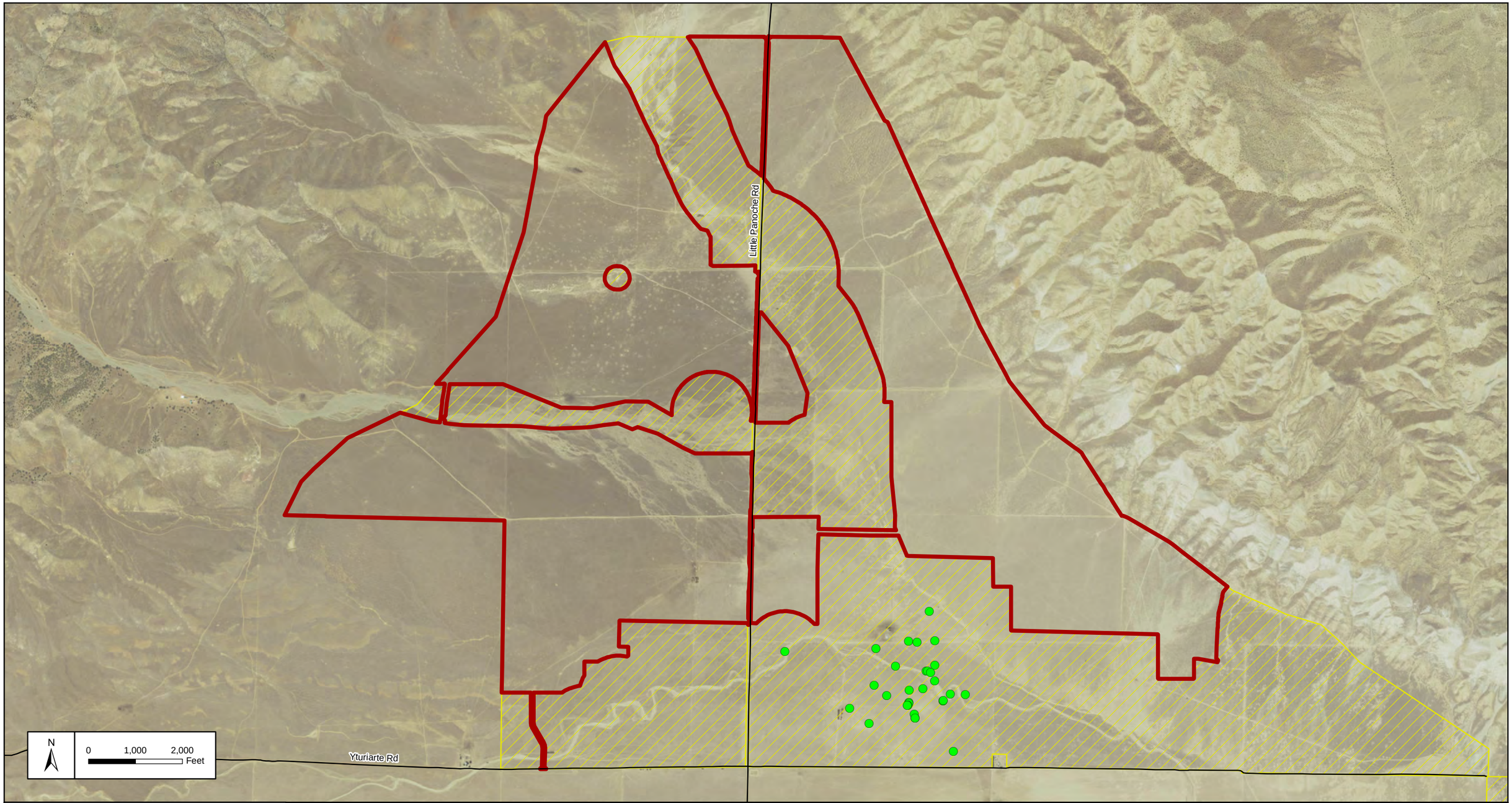
Panoche Valley Solar Project

Modified Blunt-nosed Leopard Lizard Protocol Survey

Spring and Summer 2015

FIGURE
12

JH 2015-08-11



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

- Project Footprint
- Valley Floor Conservation Lands
- BNLL Observation

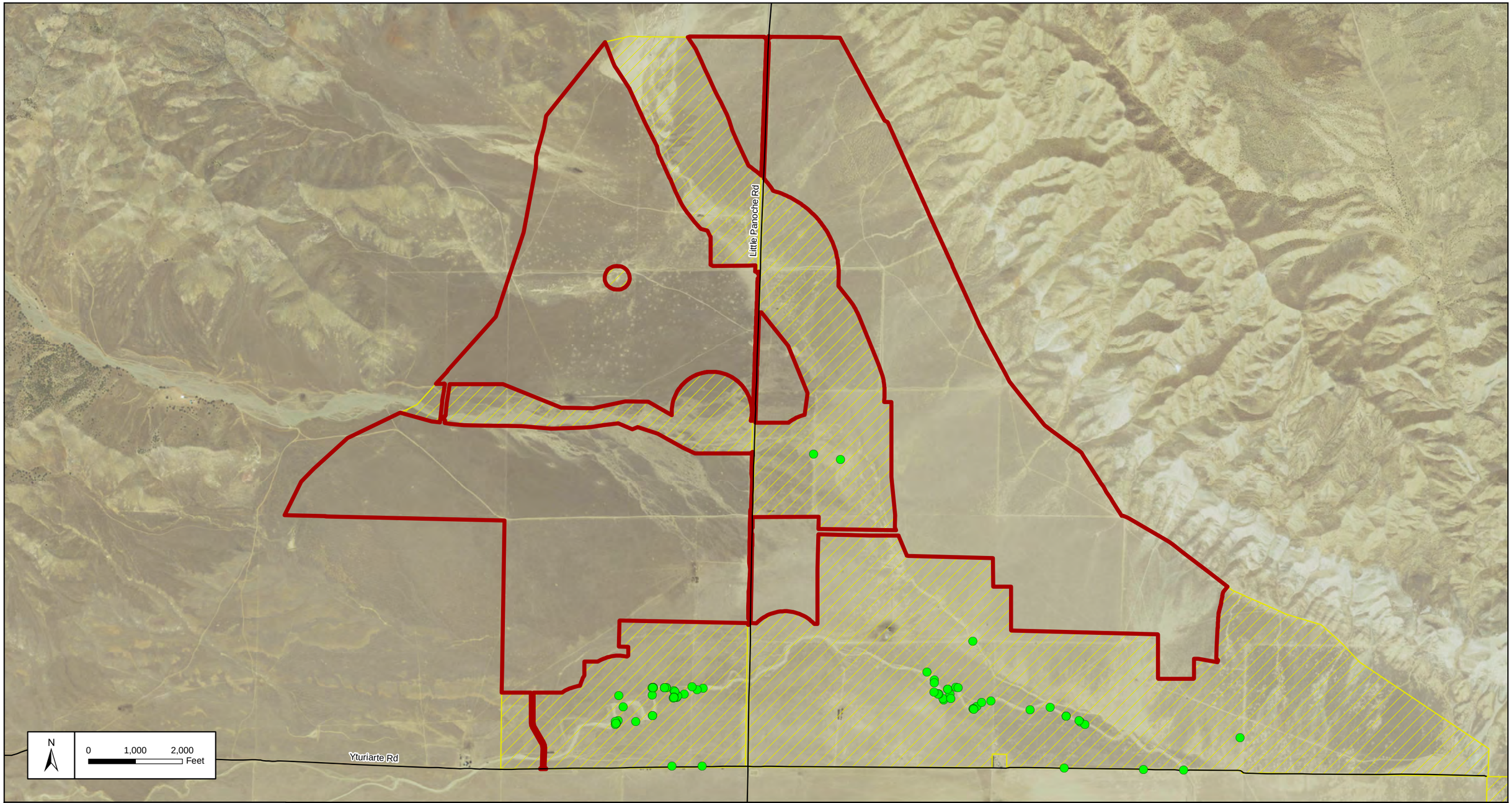
Panoche Valley Solar Project

BNLL Observations 2009

FIGURE

13

JH 2015-08-11



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

Project Footprint

Valley Floor Conservation Lands

BNLL Observation

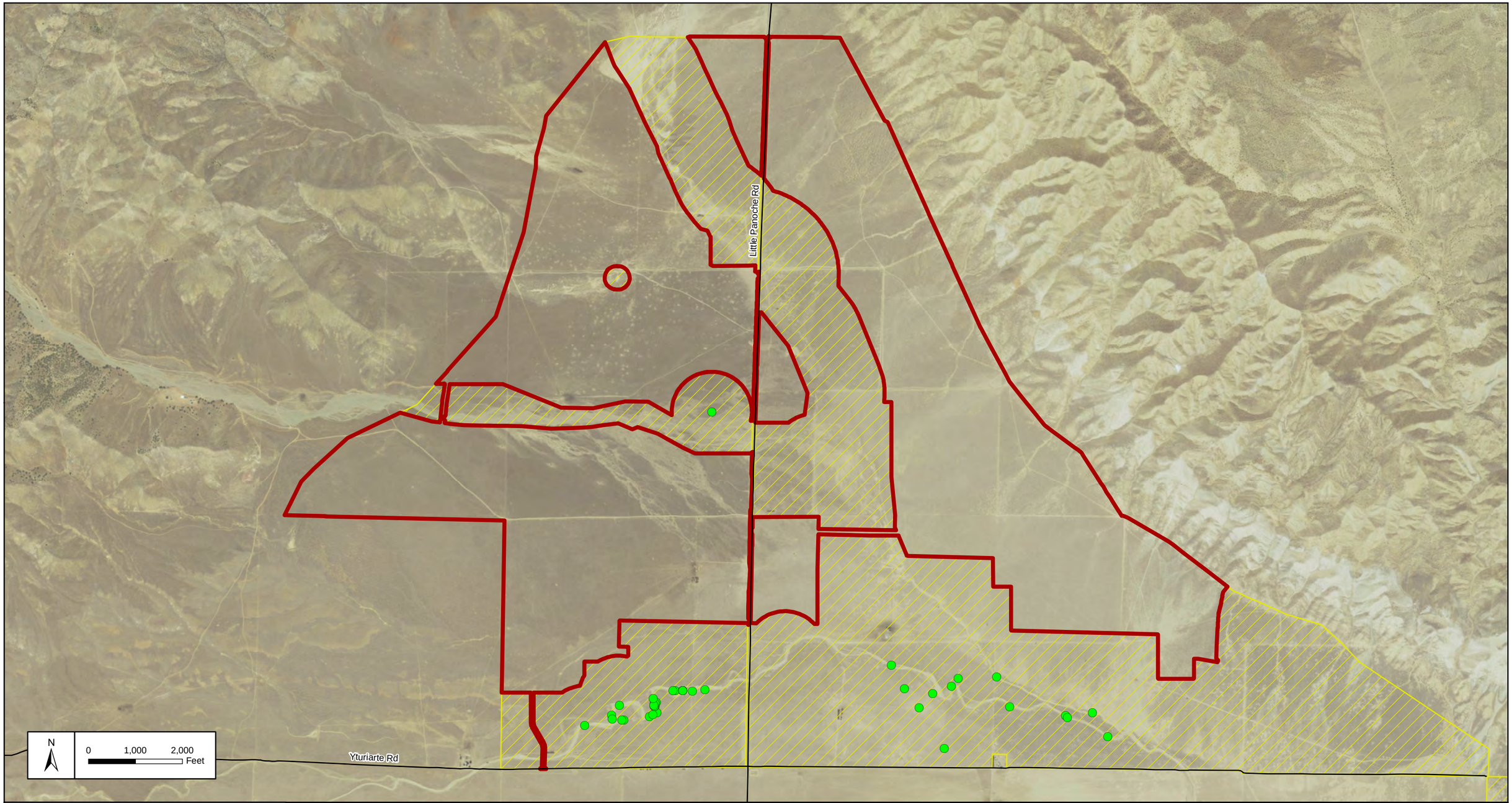
Panoche Valley Solar Project

BNLL Observations 2010

FIGURE

14

JH 2015-08-11



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

Project Footprint

Valley Floor Conservation Lands

BNLL Observation

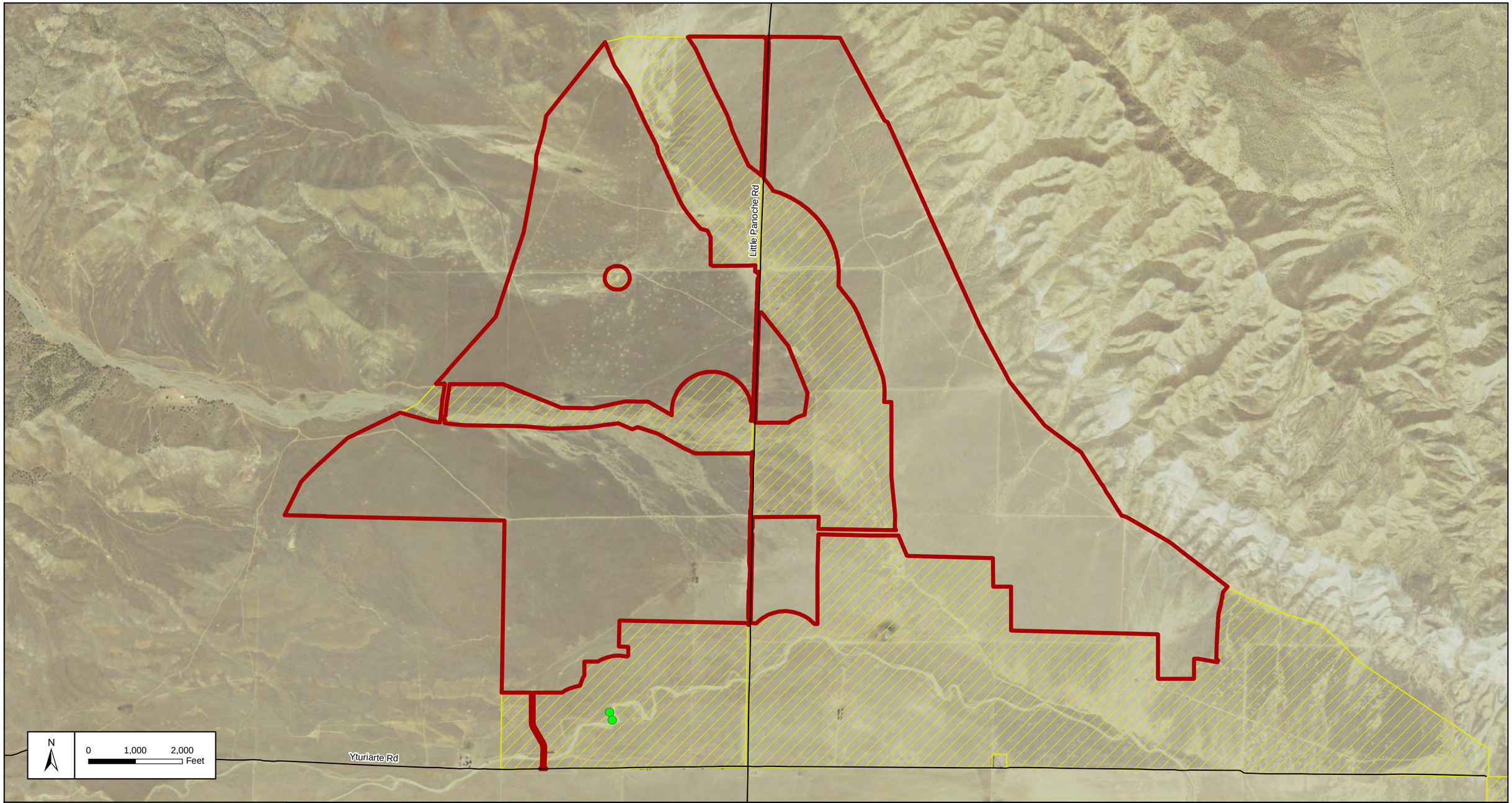
Panoche Valley Solar Project

BNLL Observations 2013

FIGURE

15

JH 2015-08-11



305 Camp Craft Road, Suite 575
West Lake Hills, Texas 78746
512-222-1125
www.energyrenewalpartners.com
Energy Renewal
PARTNERS, LLC

Legend

Project Footprint

Valley Floor Conservation Lands

BNLL Observation

Panoche Valley Solar Project

BNLL Observations 2014

FIGURE

16

JH 2015-08-11

Table 2. BNLL Observed During Protocol Conditions

BNLL Point	UTM	Detection Date	Sex	Age Class	Temperature	Wind	Description
Adult Survey (May 9 through July 13, 2013)							
BNLL6	10 S 692115 4054924	5/14/2013	Female	Adult	Unknown	Unknown	Breeding colors apparent, Flushed from flat surface just outside of a burrow. On the south facing bank.
BNLL7	10 S 691942 4054896	5/10/2013	Unknown	Adult	Unknown	Unknown	Darted into burrow, on south-aspect wall of wash, head exposed in burrow entrance
BNLL8	10 S 691577 4054940	5/10/2013	Unknown	Adult	Unknown	Unknown	Ran quickly into a burrow
BNLL9	10 S 692220 4054773	5/14/2013	Male	Adult	Unknown	Unknown	Breeding colors. Sunning on side of burrow.
BNLL10	10 S 689276 4054847	6/3/2013	Unknown	Adult	90.5°F	0.9 mph	One meter from east wall of wash, small individual, probably young from last year, has salmon blotches on throat, but no spots on top of neck, detection distance was 5 meters
BNLL11	10 S 689292 4054806	6/3/2013	Unknown	Adult	91.0°F	4.2 mph	BNLL 15m from wash, all white on ventral side, no breeding colors, 9:55am, 10-foot detection distance
BNLL12	10 S 689277 4054847	6/6/2013	Female	Adult	93.0°F	1.0. mph	Breeding colors in wash bottom next to burrow
BNLL13	10 S 689274 4054846	6/6/2013	Unknown	Adult	93.0°F	1.0 mph	Salmon colored splotches on neck went down into burrow in wash bottom
BNLL14	10 S 689453 4054955	6/6/2013	Female	Adult	96.7°F	3.3 mph	Ran to burrow, had salmon colored splotches on neck, above wash was below 95°F
BNLL15	10 S 689046 4054843	6/11/2013	Unknown	Most Likely Adult	95.5°F	5.2 mph	BNLL in wash, not associated with a burrow, small individual, likely a first-year individual, no breeding colors, ran away out of the wash onto plateau area to the south, temperature up out of wash was 90°F
BNLL16	10 S 689245 4054778	6/11/2013	Unknown	Adult	95.0°F	3.3 mph	Ran across the wash and up the vertical into the grass on top. Distance to detection was around 5 meters
BNLL17	10 S 689454 4054955	6/11/2013	Female	Adult	90.5°F	6.0 mph	Possibly same female as BNLL14 and BNLL4, light body shade
BNLL18	10 S 691954 4054885	6/13/2013	Female	Adult	91.0°F	1.3 mph	BNLL female, adult, 44 feet off transect #60, sticking out of a burrow, 12:08 pm
BNLL20	10 S 689277 4054864	6/30/2013	Female	Adult	95.6°F	5.6 mph	Breeding colors, this female up while a team was finishing their lines between 95°F and 97°F in Block 5
BNLL22	10 S 688998 4054778	7/5/2013	Female	Adult	90.1°F	5.6 mph	BNLL in wash
BNLL23	10 S 689271 4054852	7/5/2013	Female	Adult	90.1°F	5.6 mph	Possibly same individual as BNLL21 (Table 2), no weather information taken
BNLL24	10 S 689516 4054954	7/6/2013	Female	Adult	96.0°F	2.3 mph	Some breeding colors, ran from wash bottom to burrow on S side of wash, used as a reference from 1107-1118 until the rest of the crew finished transects, left her at 96°F
BNLL25	10 S 690991 4054908	7/6/2013	Female	Adult	85.0°F	2.8 mph	Basking in sun in wash

BNLL26	10 S 689596 4054969	7/7/2013	Female	Adult	96.8°F	3.2 mph	Basking in sun on south side of wash, ran out to middle of wash bottom to back on a rock, used as reference BNLL until 97°F
Hatchlings and Sub-adult (August 2 through September 10, 2013)							
BNLL28	10 S 689003 4054750	8/2/2013	Female	Adult	90.6	9.3 mph	Very thin female, basking in the sun.
BNLL29	10 S 689267 4054791	8/2/2013	Unknown	Hatchling	88.0	6.3 mph	Detection was 20 minutes after detection of BNLL30 and was in the same general area at 10:50am.
BNLL30	10 S 689264 4054899	8/2/2013	Unknown	Hatchling	88.0	6.3 mph	10:30am hatchling detection.
BNLL31	10 S 690799 4055175	8/5/2013	Unknown	Hatchling	92.3	2.0 mph	Basking outside of a burrow, ducked quickly back into burrow in middle of wash
BNLL32	10 S 691195 4055055	8/11/2013	Unknown	Hatchling	92.0	8.6 mph	Middle of wash, ran to northern bank. Vent to snout length is estimated at 2 to 3 inches. Distance from BNLL was approximately 2 feet.
BNLL33	10 S 689079 4054748	8/16/2013	Unknown	Adult	87.0	1.2 mph	9:20am detection of adult just inside burrow about 30 meters south of wash wall. Observation lasted approximately 15 minutes
BNLL34	10 S 691234 4055109	8/22/2013	Unknown	Hatchling	92.0	9.6 mph	10:40am detection. Distance from BNLL was approximately 4 feet, vent to snout estimated at 2.5 inches, around 150 feet north of wash
BNLL35	10 S 689068 4054748	8/27/2013	Female	Adult	89.0	5.0 mph	10:40am detection. Basking in sun near log directly south of the wash in VFCL with breeding colors
BNLL36	10 S 689566 4056769	9/3/2013	Unknown	Hatchling	82.0	1.5 mph	9:35am detection. Sunning and ran as surveyor approached. There was an absence of burrows and lizard was using dried cow manure as cover.
BNLL37	10 S 688827 4054702	9/4/2013	Unknown	Hatchling	86.6	6.1 mph	Observed at 10:25am on south side of wash bed sunning.

Table 3. Incidental BNLL Observations

BNLL Point	UTM	Detection Date	Sex	Age Class	Temperature	Wind	Description
Adult Survey (May 9 through July 13, 2013)							
BNLL1	10 S 689272 4054862	5/9/2013	Unknown	Adult	Unknown	Unknown	In wash prior to survey-west of Little Panoche Rd., seen out of protocol during training.
BNLL2	10 S 689285 4054871	5/9/2013	Unknown	Adult	Unknown	Unknown	In wash prior to survey-west of Little Panoche Rd., seen out of protocol during training
BNLL3	10 S 689405 4054955	5/9/2013	Unknown	Adult	Unknown	Unknown	In wash prior to survey-west of Little Panoche Rd., seen out of protocol during training
BNLL4	10 S 689454 4054955	5/9/2013	Unknown	Adult	Unknown	Unknown	In wash prior to survey-west of Little Panoche Rd., seen out of protocol during training
BNLL5	10 S 689391 4054954	5/9/2013	Unknown	Adult	Unknown	Unknown	In wash prior to survey-west of Little Panoche Rd., seen out of protocol during training
BNLL19	10 S 689453 4054954	6/25/2013	Male	Adult	94.0°F	Unknown	Observed leaving burrow at 10:40am, stayed on the berm of the burrow for 15 min, seen out of protocol during training for new technicians
BNLL21	10 S 689273 4054845	7/4/2013	Female	Adult	96.8°F	1.2 mph	BNLL with breeding colors on face and side, 5 feet to detection, 8:45am, 96.8°F, 1.2 mph wind, reference lizard over 95°F
BNLL27	10 S 691484 4055128	7/14/2013	Unknown	Hatchling	100.6°F	9.4 mph	Likely a hatchling from this year, observed during GKR surveys
Hatchlings and Sub-adult (August 2 through September 10, 2013)							
BNLL38	10 S 690890 4055028	9/9/2013	Unknown	Hatchling	97.5	3.3 mph	Observed at 10:30am sunning near burrow.
BNLL39	10 S 691074 4055004	9/9/2013	Unknown	Hatchling	99.0	1.6 mph	No color, sunning on a burrow, cloud cover <50%, wind coming from the west northwest
BNLL40	10 S 691164 4054651	9/9/2013	Unknown	Hatchling	99.1	4.3 mph	Ran from under dried cow manure into burrow. Wind from east northeast.

Table 4. Daily Reptile Observations Recorded During 2015 Protocol-Level, BNLL Surveys Conducted for the Panoche Valley Solar Project

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Phase 2								
5/25	11:52 AM	1:53 PM	86.8	86.3	5.5	1.4	*Uta stansburiana* (1)	**Megan McCormick, Tom Malley, Garrett Moss,** Steven Driedger, **Shady Shafik, Sami Neymark**
5/27	10:55 AM	12:32 PM	83.8	85.2	7.5	6.9	None	**Megan McCormick, Tom Malley, Garrett Moss,** Steven Driedger, **Shady Shafik, Sami Neymark**
5/29	10:40 AM	12:15 PM	85.9	89.2	3.2	8.6	*Uta stansburiana* (2)	**Megan McCormick, Tom Malley, Garrett Moss**, Steven Driedger, **Shady Shafik, Sami Neymark**
6/5	10:28 AM	12:35 PM	82.7	87.4	0.9	5.9	*Uta stansburiana* (4)	**Megan McCormick, Woody Moise, Garrett Moss,** Steven Driedger, **Shady Shafik, Sami Neymark**
6/17	8:08 AM	9:30 AM	79.3	89.3	1.0	0.4	*Uta stansburiana* (6)	**Megan McCormick, Woody Moise, Garrett Moss,** Steven Driedger, **Shady Shafik, Sami Neymark**
Area A								
5/26	10:02 AM	11:03 AM	80.1	83.8	8.9	8.6	*Uta stansburiana* (12)	**Tom Malley, Sami Neymark, Garrett Moss**
5/28	10:52 AM	11:33 AM	84.9	88.6	7.4	7.1	None	**Tom Malley, Sami Neymark, Garrett Moss**
5/30	9:02 AM	9:37 AM	86.1	88.0	3.7	2.4	*Uta stansburiana* (3)	**Tom Malley, Sami Neymark, Shady Shafik**
6/2	10:57 AM	11:37 AM	80.6	84.1	6.9	4.1	*Uta stansburiana* (9)	**Woody Moise, Garrett Moss, Sami Neymark**
6/15	9:23 AM	10:02 AM	89.8	94.9	2.4	4.1	*Uta stansburiana* (10)	**Woody Moise, Garrett Moss, Sami Neymark**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Area B								
5/26	10:36 AM	11:25 AM	80.4	83.8	7.8	8.3	*Uta stansburiana* (1)	**Megan McCormick, Shady Shafik,** Steven Driedger
5/28	10:42 AM	11:35 AM	83.1	87.9	5.2	6.4	*Uta stansburiana* (1)	**Megan McCormick, Shady Shafik,** Steven Driedger
5/30	8:55 AM	9:45 AM	82.2	88.0	5.8	3.7	*Uta stansburiana* (3)	**Megan McCormick, Garrett Moss,** Steven Driedger
6/2	10:54 AM	11:48 AM	81.1	83.1	6.2	8.6	*Uta stansburiana* (3)	**Megan McCormick, Shady Shafik,** Steven Driedger
6/16	7:58 AM	8:27 AM	77.2	81.1	1.0	3.3	*Uta stansburiana* (4)	**Megan McCormick, Garrett Moss,** Steven Driedger, **Sami Neymark, Woody Moise**
Area C								
5/26	12:20 PM	12:44 PM	85.3	87.4	5.6	0.4	*Uta stansburiana* (1)	**Tom Malley, Sami Neymark, Garrett Moss**
5/27	1:05 PM	1:29 PM	85.2	92.3	6.9	3.5	None	**Megan McCormick, Shady Shafik,** Steven Driedger
5/28	12:00 PM	12:24 PM	87.9	91.4	6.4	7.0	None	**Megan McCormick, Shady Shafik,** Steven Driedger
6/4	12:00 PM	12:24 PM	80.4	83.9	7.3	3.3	None	**Megan McCormick, Shady Shafik, Sami Neymark**
6/15	9:40 AM	10:02 AM	90.9	92.5	2.8	3.1	None	**Megan McCormick, Shady Shafik,** Steven Driedger
Area D								
5/26	11:45 AM	12:06 PM	83.8	85.3	8.6	5.6	None	**Tom Malley, Sami Neymark, Garrett Moss**
5/27	1:02 PM	1:28 PM	87.3	92.3	2.9	1.0	None	**Tom Malley, Sami Neymark, Garrett Moss**
5/28	11:54 AM	12:24 PM	88.6	89.4	7.1	7.0	None	**Tom Malley, Sami Neymark, Garrett Moss**
6/4	12:02 PM	12:29 PM	80.6	83.9	2.2	2.7	None	**Garrett Moss,** Steven Driedger, **Woody Moise**
6/16	9:25 AM	9:48 AM	85.7	88.0	0.8	4.8	*Uta stansburiana* (1)	**Megan McCormick, Woody Moise, Garrett Moss,** Steven Driedger, **Sami Neymark**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Area E								
5/26	9:04 AM	10:02 AM	77..5	80.1	0.4	8.4	*Uta stansburiana* (3)	**Tom Malley, Sami Neymark, Garrett Moss**
5/28	9:26 AM	10:23 AM	81.8	84.9	2.9	7.4	*Uta stansburiana* (3) *Crotalus oreganus* (1)	**Tom Malley, Sami Neymark, Garrett Moss**
5/30	7:48 AM	8:44 AM	77.3	86.1	0.2	3.7	*Uta stansburiana* (3)	**Tom Malley, Sami Neymark, Shady Shafik**
6/2	9:35 AM	10:36 AM	77.0	80.6	7.4	6.9	*Uta stansburiana* (4)	**Woody Moise, Garrett Moss, Sami Neymark**
6/15	8:01 AM	9:01 AM	78.0	89.8	0.0	2.4	*Uta stansburiana* (4)	**Woody Moise, Garrett Moss, Sami Neymark**
Area F								
5/26	9:30 AM	10:20 AM	79.7	80.4	7.0	7.8	*Uta stansburiana* (6)	**Megan McCormick,** Steven Driedger, **Shady Shafik**
5/28	9:29 AM	10:17 AM	81.8	83.1	5.8	5.2	*Uta stansburiana* (3)	**Megan McCormick,** Steven Driedger, **Shady Shafik**
5/30	7:51 AM	8:40 AM	77.2	82.2	1.2	5.8	*Uta stansburiana* (4)	**Megan McCormick,** Steven Driedger, **Garrett Moss**
6/2	9:40 AM	10:33 AM	77.2	81.1	6.4	6.2	*Uta stansburiana* (3)	**Megan McCormick,** Steven Driedger, **Shady Shafik**
6/15	8:09 AM	9:10 AM	81.6	90.9	1.6	2.8	*Uta stansburiana* (6) *Pituophis catenifer (1)*	**Megan McCormick,** Steven Driedger, **Shady Shafik**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Area G								
5/26	11:40 AM	1:32 PM	83.8	87.6	8.3	5.1	*Uta stansburiana* (1)	**Megan McCormick,** Steven Driedger, **Shady Shafik, Garrett Moss, Tom Malley, Sami Neymark**
5/27	9:24 AM	10:23 AM	77.9	82.2	7.5	4.3	*Uta stansburiana* (1)	**Megan McCormick,** Steven Driedger, **Shady Shafik, Garrett Moss, Tom Malley, Sami Neymark**
5/29	9:20 AM	10:13 AM	81.6	85.9	2.5	3.2	*Uta stansburiana* (1)	**Megan McCormick,** Steven Driedger, **Shady Shafik, Garrett Moss, Tom Malley, Sami Neymark**
6/5	9:46 AM	10:36 AM	80.9	85.8	3.4	2.9	*Uta stansburiana* (1)	**Garrett Moss, Shady Shafik,** Steven Driedger, **Sami Neymark**
6/19	8:23 AM	9:31 AM	78.2	88.3	7.7	4.1	*Uta stansburiana* (3)	**Alli Rhodehamel, Garrett Moss, Sami Neymark, Shady Shafik**
Bridge North								
6/6	8:24 AM	8:37 AM	77.0	83.0	3.1	1.3	None	**Megan McCormick, Woody Moise, Garrett Moss,** Steven Driedger, **Shady Shafik, Sami Neymark**
6/19	10:01 AM	10:18 AM	91.0	91.7	1.8	4.2	*Uta stansburiana* (2)	**Alli Rhodehamel,** Steven Driedger, **Sami Neymark, Woody Moise, Shady Shafik, Garrett Moss**
6/26	7:19 AM	7:42 AM	79.1	82.5	0.0	2.0	None	**Alli Rhodehamel,** Steven Driedger, **Shane O'Malley, Garrett Moss**
6/27	7:50 AM	8:02 AM	81.9	83.1	4.0	0.4	*Uta stansburiana* (7)	**Alli Rhodehamel, Shane O'Malley,** Jordan Reid, Steven Driedger
6/28	8:20 AM	8:30 AM	81.6	85.5	2.3	2.8	*Uta stansburiana* (2)	**Alli Rhodehamel,** Steven Driedger, **Shane O'Malley,** Jordan Reid
Bridge South								
6/6	9:13 AM	9:32 AM	82.9	82.2	4.8	5.8	*Uta stansburiana* (4)	**Megan McCormick, Woody Moise, Garrett Moss,** Steven Driedger, **Shady Shafik, Sami Neymark**
6/26	6:45 AM	7:06 AM	77.1	78.1	3.2	1.4	*Uta stansburiana* (6)	**Alli Rhodehamel,** Steven Driedger, **Shane O'Malley, Garrett Moss**
6/27	7:08 AM	7:28 AM	78.1	82.0	4.8	5.6	*Uta stansburiana* (4)	**Alli Rhodehamel, Shane O'Malley,** Jordan Reid, Steven Driedger
6/28	7:36 AM	7:53 AM	77.8	81.5	5.6	1.2	*Uta stansburiana* (9)	**Alli Rhodehamel, Shane O'Malley,** Jordan Reid, Steven Driedger
6/29	7:22 AM	7:40 AM	77.9	80.2	6.0	4.4	*Uta stansburiana* (15)	**Alli Rhodehamel, Shane O'Malley, Sami Neymark,** Steven Driedger

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Fenceline								
6/23	10:28 AM	10:55 AM	89.4	93.7	4.4	7.0	*Uta stansburiana* (5)	Steven Driedger, **Woody Moise**
6/25	7:15 AM	7:47 AM	77.3	81.3	2.3	1.2	*Uta stansburiana* (2)	Steven Driedger, **Woody Moise**
6/26	8:16 AM	9:11 AM	86.5	91.7	0.2	0.0	*Uta stansburiana* (12)	**Alli Rhodehamel**, Steven Driedger
6/27	8:32 AM	9:26 AM	82.2	85.6	2.0	5.1	*Uta stansburiana* (4)	**Alli Rhodehamel**, Steven Driedger
6/28	8:56 AM	9:46 AM	83.5	88.7	0.0	1.2	*Uta stansburiana* (13)	**Alli Rhodehamel**, Steven Driedger
6/29	8:08 AM	8:40 AM	83.9	89.1	0.0	5.0	*Uta stansburiana* (19)	**Alli Rhodehamel**, Steven Driedger, **Shane O'Malley**, **Sami Neymark**
Telecom 1								
6/5	9:25 AM	9:50 AM	79.3	80.9	1.4	3.4	*Uta stansburiana* (3)	**Megan McCormick**, Steven Driedger, **Shady Shafik**, **Woody Moise**, **Garrett Moss**, **Sami Neymark**
6/16	8:42 AM	9:00 AM	81.3	85.0	1.8	2.8	None	**Megan McCormick**, Steven Driedger, **Woody Moise**, **Garrett Moss**, **Sami Neymark**
6/19	8:30 AM	9:15 AM	78.2	87.9	7.7	8.1	*Uta stansburiana* (4)	**Woody Moise**, Steven Driedger
6/26	8:04 AM	8:56 AM	87.9	91.4	0.5	1.4	*Uta stansburiana* (6)	**Shane O'Malley**, **Garrett Moss**
6/27	8:45 AM	9:35 AM	85.5	90.8	0.1	5.6	*Uta stansburiana* (5)	**Shane O'Malley**, Jordan Reid
6/28	8:18 AM	9:08 AM	84.7	89.4	3.3	1.4	*Uta stansburiana* (2)	**Shane O'Malley**, Jordan Reid
Telecom 2								
6/2	12:12 PM	12:25 PM	83.1	83.1	8.6	6.0	*Uta stansburiana* (1)	**Megan McCormick**, Steven Driedger, **Shady Shafik**, **Woody Moise**, **Garrett Moss**, **Sami Neymark**
6/16	10:03 AM	10:20 AM	88.0	91.1	4.8	5.7	*Uta stansburiana* (1)	**Megan McCormick**, Steven Driedger, **Woody Moise**, **Garrett Moss**, **Sami Neymark**
6/20	9:19 AM	9:38 AM	90.8	94.6	0.4	1.0	*Uta stansburiana* (3)	**Alli Rhodehamel**, Steven Driedger, **Garrett Moss**, **Sami Neymark**
6/23	7:44 AM	8:18 AM	77.0	83.1	0.4	2.4	*Uta stansburiana* (2)	**Woody Moise**, Steven Driedger
6/24	7:50 AM	8:23 AM	77.1	82.2	0.9	0.0	*Uta stansburiana* (6)	**Woody Moise**, Steven Driedger

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Telecom 3								
6/4	1:21 PM	1:57 PM	84.3	88.3	2.9	1.2	*Uta stansburiana* (15)	**Megan McCormick**, Steven Driedger, **Shady Shafik**, **Woody Moise**, **Garrett Moss**, **Sami Neymark**
6/20	8:01 AM	8:53 AM	77.8	88.1	2.7	0.4	*Uta stansburiana* (38)	**Alli Rhodehamel**, **Sami Neymark**, **Garrett Moss**, Steven Driedger
6/23	8:45 AM	9:50 AM	86.1	90.2	4.0	7.1	*Uta stansburiana* (42)	**Woody Moise**, Steven Driedger
6/24	8:48 AM	9:54 AM	85.3	91.6	1.2	0.6	*Uta stansburiana* (38)	**Woody Moise**, Steven Driedger
6/25	8:10 AM	9:22 AM	84.5	93.4	0.2	3.2	*Uta stansburiana* (64)	**Woody Moise**, Steven Driedger
Telecom 4								
6/3	10:47 AM	12:25 PM	85.0	87.4	8.6	6.9	*Uta stansburiana* (5)	**Woody Moise**, **Shady Shafik**
6/20	7:54 AM	8:38 AM	80.3	86.1	3.1	1.3	*Uta stansburiana* (12)	**Woody Moise**, **Shady Shafik**
6/26	6:51 AM	7:57 AM	77.5	83.8	0.0	1.4	*Uta stansburiana* (17)	**Woody Moise**, **Sami Neymark**
6/27	7:00 AM	8:06 AM	77.0	86.4	2.2	3.0	*Uta stansburiana* (11)	**Steven Pruett**, **Shady Shafik**
6/28	7:36 AM	8:39 AM	78.6	87.2	3.4	0.0	*Uta stansburiana* (20)	**Steven Pruett**, **Shady Shafik**
Telecom 4 Drainage Crossings								
6/3	9:35 AM	10:47 AM	78.6	85.0	6.4	8.6	*Uta stansburiana* (3)	**Woody Moise**, **Shady Shafik**
6/20	7:40 AM	9:29 AM	79.0	92.2	3.1	1.2	*Uta stansburiana* (20)	**Woody Moise**, **Shady Shafik**
6/26	7:57 AM	8:52 AM	83.8	92.8	1.4	0.5	*Uta stansburiana* (26)	**Woody Moise**, **Sami Neymark**
6/27	7:00 AM	9:10 AM	77.0	87.6	2.2	3.4	*Uta stansburiana* (35)	**Steven Pruett**, **Shady Shafik**
6/28	7:36 AM	9:36 AM	78.6	89.5	3.4	0.0	*Uta stansburiana* (33)	**Steven Pruett**, **Shady Shafik**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End		
Telecom 6								
6/6	11:37 AM	12:11 PM	88.9	92.5	6.2	1.8	*Uta stansburiana* (1)	**Megan McCormick**, Steven Driedger, **Shady Shafik**, **Garrett Moss**, **Woody Moise**, **Sami Neymark**
6/23	7:31 AM	8:57 AM	77.2	84.4	0.7	2.4	*Uta stansburiana* (5)	**Alli Rhodehamel**, **Sami Neymark**
6/24	7:34 AM	9:00 AM	79.5	84.5	0.2	5.4	*Uta stansburiana* (18)	**Alli Rhodehamel**, **Sami Neymark**
6/25	7:09 AM	8:44 AM	77.8	88.7	1.6	1.2	*Gambelia sila* (1) *Uta stansburiana* (22)	**Alli Rhodehamel**, **Sami Neymark**
6/28	7:36 AM	9:04 AM	77.1	87.6	0.0	3.1	*Uta stansburiana* (24)	**Garrett Moss**, **Sami Neymark**
Telecom 7								
6/3	11:17 AM	12:16 PM	83.0	86.0	7.0	2.3	*Uta stansburiana* (3)	**Garrett Moss**, **Sami Neymark**
6/23	9:06 AM	9:31 AM	80.4	83.7	9.0	6.4	*Uta stansburiana* (3)	**Alli Rhodehamel**, **Garrett Moss**, **Sami Neymark**, **Shane O'Malley**
6/24	8:39 AM	9:13 AM	81.1	86.1	8.1	6.4	*Uta stansburiana* (4)	**Shane O'Malley**, **Garrett Moss**
6/25	8:44 AM	9:05 AM	89.2	93.1	1.3	0.4	*Uta stansburiana* (6)	**Shane O'Malley**, **Garrett Moss**, **Sami Neymark**, **Alli Rhodehamel**
6/27	8:48 AM	9:24 AM	80.4	90.7	2.1	6.0	*Uta stansburiana* (7)	**Garrett Moss**, **Sami Neymark**
Telecom 8								
6/3	8:54 AM	10:25 AM	77.0	80.0	2.9	1.7	*Sceloporus uniformis* (1) *Uta stansburiana* (13)	**Garrett Moss**, **Sami Neymark**
6/23	7:25 AM	8:16 AM	77.5	78.5	0.0	3.0	*Uta stansburiana* (5) *Crotalus oreganus* (1)	**Garrett Moss**, **Shane O'Malley**
6/24	7:18 AM	8:00 AM	77.2	78.4	7.5	4.7	*Uta stansburiana* (7)	**Shane O'Malley**, **Garrett Moss**
6/25	7:07 AM	7:59 AM	77.2	81.1	6.7	2.5	*Uta stansburiana* (3)	**Shane O'Malley**, **Garrett Moss**
6/27	7:16 AM	8:09 AM	77.1	80.9	4.0	0.0	*Uta stansburiana* (4)	**Garrett Moss**, **Sami Neymark**

APPENDIX A

Photo Log

Photo 1. General view of Valley Floor Conservation Lands (VFCL) and Project Site looking north.

Photo 2. General view of wash within the VFCL and Project in the background looking north/northwest.

Photo 3. General view of wash within the VFCL looking southeast.

Photo 4. General view of wash within the VFCL looking west.

Photo 5. Female adult blunt-nosed leopard lizard observed in VFCL.

Photo 6. Hatchling/sub-adult blunt-nosed leopard lizard observed in VFCL.

McCORMICK
BIOLOGICAL, INC.
Biological Sciences – Inventory, Permitting, and Planning

MEMORANDUM

Date: **September 22, 2015**

To: Jennifer Kaminsky

Of: Burns and McDonnell Engineering Company, Inc.

From: Randi McCormick, Principal Biologist

Subject: BNLL hatchling season surveys – portions of Project Footprint, Valley Floor Conservation Lands and Telecom Sites

Purpose

The purpose of this memorandum is to briefly document blunt-nosed leopard lizard (BNLL) hatchling season surveys conducted by McCormick Biological, Inc. on portions of the Panoche Solar Project Footprint, Valley Floor Conservation Lands and Telecommunications sites located in Fresno and San Benito County, California. This memorandum is further intended as a follow-up to *Panoche Valley Solar Blunt-nosed Leopard Lizard Report* prepared by Energy Renewal Partners, LLC and McCormick Biological, Inc. (August 2015) (PVS BNLL Report). The surveys covered 640 acres on the Project Footprint, 82 acres on the VFCL, and 10 locations (144 acres) on the Telecommunications route as shown on Figure 12 of the PVS BNLL Report (Attachment 1).

Survey

Survey methodology generally followed the CDFW Approved Survey Methodology for the Blunt-nosed Leopard Lizard (CDFG 2004) with the exception of the number of iterations of transects completed.

Abbreviated hatchling season BNLL surveys were targeted for August 1 through August 30 based on discussions with CDFW. This window is more restrictive than the CDFW-approved survey window of August 1 to September 15. The 2015 abbreviated hatchling BNLL surveys were accomplished by completing four iterations of set 30 meter transects within the survey area. Transects were shifted 15 meters every other iteration with 100% coverage of the survey area as the objective. The hatchling BNLL surveys were conducted by between two and six Level II surveyors over 15 days of fieldwork. To reduce the potential for misidentification of reptiles, no Level I surveyors participated in hatchling surveys.

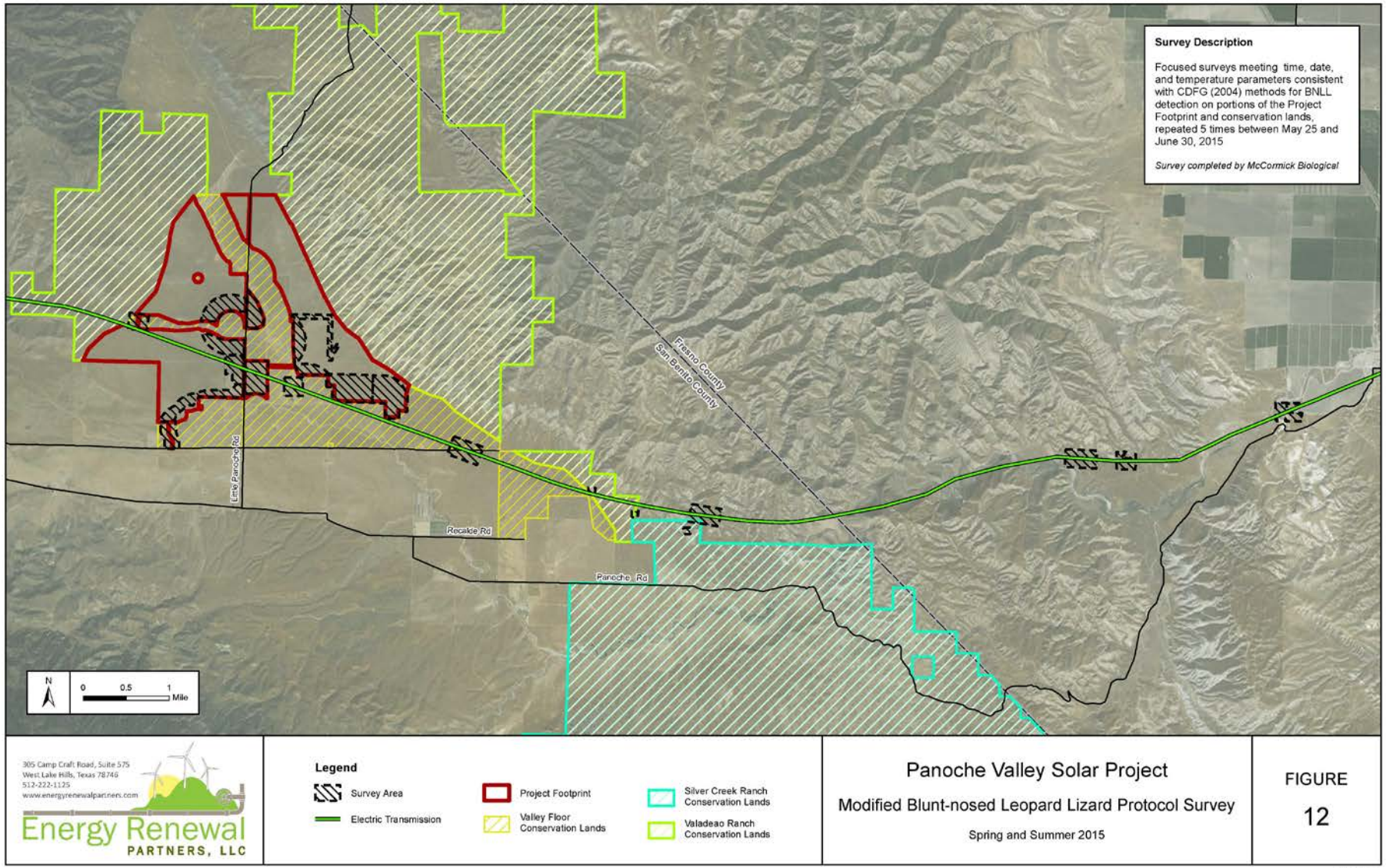
During the hatchling surveys, the surveys were not conducted when weather conditions onsite were out of protocol limits (i.e. >90% cloud cover, sustained >10 miles-per-hour). Surveys were also conducted within the protocol's temperature window of between 77°F to 95°F (25° to 35° Celsius). In addition, surveys began after sunrise, as soon as the minimum air temperature criterion was met, and ended by 1400 hours or when the maximum temperature was reached, whichever occurred first. If the maximum air temperature was reached during a survey, that transect was finished and no further surveys were conducted that day.

All BNLL observations were recorded using handheld GPS devices and observations were categorized by sex (male or female) and age class (adult, juvenile, or hatchling) if possible. Start and end temperature, wind speed, and other wildlife observations were noted. For reptile species identified, the number of individuals observed was recorded. In addition, the relative number of invertebrate species observed that represented potential prey items for BNLL were recorded, based on a suggestion received from CDFW staff. Relative abundance of prey items observed on each transect was classified as none, low (1-9), medium (10-99) or high (100+).

Findings

No BNLL were found within the survey areas during the 2015 abbreviated hatchling surveys. Invertebrate observations on transects generally fell within the low and medium categories, with very few transects classified as high relative abundance. Transects were variable in length; therefore, quantitative comparisons cannot be made. The only reptile observations consisted of common side-blotched lizard (*Uta stansburiana*). See Attachment 2 for results recorded during the 2015 hatchling season surveys.

Attachment 1: Figure 12 from PVS BNLL Report – Abbreviated Hatchling BNLL Survey Locations



Attachment 2: PVS Abbreviated Hatchling BNLL Survey Results Table

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		15 meters offset	Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End			
Phase 2									
8/5	10:19 AM	11:46 AM	80.6	88.8	1.7	7.5		*Uta stansburiana* (3)	**Steve Pruett, Woody Moise, Samuel Louden, Garrett Moss, Blaine Grant, Sami Neymark**
8/13	8:34 AM	10:13 AM	77.4	89.5	0.8	3.3	X	*Uta stansburiana* (16)	**Allison Locatell, Shane O'Malley, Sami Neymark, Steve Pruett, Samuel Louden, Jake Hutton**
8/18	7:42 AM	9:14 AM	77.4	90.1	1.0	2.1		*Uta stansburiana* (18)	**Russell Kokx, Jake Hutton, Samuel Louden, Sami Neymark, Sabrina Alaniz, Kayla Doty**
8/21	8:33 AM	10:31 AM	77.0	91.3	2.8	4.3	X	*Uta stansburiana* (8)	**Russell Kokx, Kayla Doty, Sami Neymark, Sabrina Alaniz, Woody Moise**
Area A									
8/4	12:02 PM	12:49 PM	87.5	88.3	6.9	77.1		*Uta stansburiana* (5)	**Steve Pruett, Samuel Louden, Woody Moise**
8/14	11:10 AM	12:04 PM	87.6	91.0	5.5	6.4	X	None	**Jake Hutton, Shane O'Malley, Samuel Louden**
8/19	9:24 AM	10:12 AM	89.6	94.0	2.0	8.1		*Uta stansburiana* (23)	**Russell Kokx, Samuel Louden, Jake Hutton**
8/22	9:38 AM	10:21 AM	84.2	89.4	1.8	2.5	X	*Uta stansburiana* (13)	**Waring Laurendine, Kayla Doty, Sami Neymark**
Area B									
8/4	12:03 PM	12:51 PM	87.4	86.4	2.4	1.2		*Uta stansburiana* (7)	**Garrett Moss, Sami Neymark, Blaine Grant**
8/14	10:53 AM	11:56 AM	86.6	92.0	0.6	4.8	X	*Uta stansburiana* (11)	**Sami Neymark, Allison Locatell, Waring Laurendine**
8/19	9:14 AM	10:06 AM	86.2	94.0	5.4	0.4		*Uta stansburiana* (6)	**Sabrina Alaniz, Sami Neymark, Kayla Doty**
8/22	9:30 AM	10:34 AM	83.2	89.3	1.5	6.6	X	*Uta stansburiana* (8)	**Steve Pruett, Sabrina Alaniz, Jake Hutton**
Area C									
8/5	12:10 PM	12:36 PM	86.7	92.5	1.2	5.5		None	**Garrett Moss, Blaine Grant, Sami Neymark**
8/12	10:55 AM	11:19 AM	91.1	91.6	6.0	3.3	X	None	**Sami Neymark, Samuel Louden, Shane O'Malley**
8/14	12:20 PM	12:56 PM	93.5	95.0	2.8	4.7		*Uta stansburiana* (1)	**Sami Neymark, Allison Locatell, Waring Laurendine**
8/21	10:50 AM	11:32 AM	91.3	94.7	4.3	4.8	X	None	**Woody Moise, Russell Kokx**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		15 meters offset	Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End			
Area D									
8/5	12:10 PM	12:40 PM	88.8	92.3	7.5	2.6		None	**Steve Pruett, Woody Moise, Samuel Louden**
8/12	10:59 AM	11:25 AM	91.1	93.2	3.7	3.1	X	None	**Steve Pruett, Allison Locatell, Jake Hutton**
8/15	8:30 AM	8:58 AM	77.7	85.6	0.9	0.1		None	**Samuel Louden, Waring Laurendine**
8/21	10:59 AM	11:26 AM	91.3	94.7	4.3	4.8	X	*Uta stansburiana* (1)	**Kayla Doty, Sabrina Alaniz, Sami Neymark**
Area E									
8/4	10:08 AM	11:07 AM	78.6	86.2	4.0	2.3		*Uta stansburiana* (12)	**Steve Pruett, Samuel Louden, Woody Moise**
8/14	9:30 AM	10:50 AM	81.7	87.1	0.0	4.4	X	*Uta stansburiana* (12)	**Jake Hutton, Shane O'Malley, Samuel Louden**
8/19	8:14 AM	9:13 AM	81.4	87.8	3.1	4.1		*Uta stansburiana* (22)	**Russell Kokx, Samuel Louden, Jake Hutton**
8/22	8:31 AM	9:31 AM	78.0	84.2	0.0	1.8	X	*Uta stansburiana* (22)	**Waring Laurendine, Kayla Doty, Sami Neymark**
Area F									
8/4	10:11 AM	11:08 AM	78.6	85.2	4.0	1.3		*Uta stansburiana* (11)	**Garrett Moss, Sami Neymark, Blaine Grant**
8/14	9:33 AM	10:34 AM	82.4	86.4	0.6	9.0	X	*Uta stansburiana* (26)	**Sami Neymark, Allison Locatell, Waring Laurendine**
8/19	8:17 AM	9:07 AM	81.5	83.2	1.2	5.4		*Uta stansburiana* (19)	**Sabrina Alaniz, Sami Neymark, Kayla Doty**
8/22	8:27 AM	9:24 AM	78.0	83.2	1.3	1.5	X	*Uta stansburiana* (15)	**Steve Pruett, Sabrina Alaniz, Jake Hutton**
Area G									
8/4	1:00 PM	1:49 PM	86.4	87.5	7.1	5.6		*Uta stansburiana* (5)	**Garrett Moss, Sami Neymark, Blaine Grant, Steve Pruett**
8/12	8:51 AM	9:47 AM	77.6	87.1	0.7	3.7	X	*Uta stansburiana* (6)	**Steve Pruett, Allison Locatell, Sami Neymark, Jake Hutton**
8/15	9:49 AM	10:54 AM	89.9	94.6	6.0	5.9		*Uta stansburiana* (11)	**Jake Hutton, Shane O'Malley, Allison Locatell, Sami Neymark**
8/20	9:52 AM	10:49 AM	83.8	88.7	6.7	1.0	X	*Uta stansburiana* (5)	**Russell Kokx, Jake Hutton, Kayla Doty, Sami Neymark**
Bridge North									
8/7	10:06 AM	10:25 AM	88.6	87.3	2.9	3.3		*Uta stansburiana* (6)	**Sabrina Alaniz, Woody Moise, Shane O'Malley, Alli Rhodehamel**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		15 meters offset	Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End			
8/14	8:51 AM	9:07 AM	77.3	77.5	0.8	2.3	X	*Uta stansburiana* (14)	**Waring Laurendine, Jake Hutton, Allison Locatell, Sam Louden, Sami Neymark**
8/20	11:10 AM	11:29 AM	89.5	91.5	1.4	2.9		*Uta stansburiana* (14)	**Russell Kokx, Jake Hutton, Kayla Doty, Sami Neymark, Sabrina Alaniz, Samuel Louden**
8/22	10:55 AM	11:08 AM	91.2	93.9	4.1	3.2	X	*Uta stansburiana* (8)	**Steve Pruett, Waring Laurendine, Sami Neymark, Kayla Doty, Sabrina Alaniz**
Bridge South									
8/7	11:00 AM	11:21 AM	92.3	92.2	4.2	8.0		*Uta stansburiana* (10)	**Sabrina Alaniz, Steve Pruett, Woody Moise, Alli Rhodehamel, Samuel Louden, Shane O'Malley**
8/11	12:12 PM	12:30 PM	93.6	94.1	1.2	0.6	X	*Uta stansburiana* (9)	**Steve Pruett, Samuel Louden, Shane O'Malley, Jake Hutton, Allison Locatell, Sami Neymark**
8/18	9:49 AM	10:07 AM	94.0	95.6[1]	2.9	3.5		*Uta stansburiana* (19)	**Sami Neymark, Sabrina Alaniz, Kayla Doty, Russell Kokx, Jake Hutton, Samuel Louden**
8/22	11:31 AM	11:50 AM	93.9	93.6	7.4	9.2	X	*Uta stansburiana* (12)	**Steve Pruett, Waring Laurendine, Sami Neymark, Kayla Doty, Sabrina Alaniz, Jake Hutton**
[1] Maximum temperature reached during final transect. Start temperature of final transect was 94.6°F									
Fenceline									
8/7	9:24 AM	10:32 AM	79.1	92.2	9.6	5.4		*Uta stansburiana* (16)	**Steve Pruett, Samuel Louden**
8/11	10:56 AM	11:53 AM	92.6	95.0	1.5	1.6	X	*Uta stansburiana* (7)	**Steve Pruett, Samuel Louden**
8/15	9:13 AM	10:18 AM	83.7	91.2	0.1	2.0		*Uta stansburiana* (31)	**Samuel Louden, Waring Laurendine**
8/20	8:35 AM	9:44 AM	77.2	86.6	0.0	4.5	X	*Uta stansburiana* (17)	**Samuel Louden, Sabrina Alaniz**
Telecom 1									
8/4	12:55 PM	1:33 PM	88.3	88.7	7.1	7.3		*Uta stansburiana* (1)	**Samuel Louden, Woody Moise**
8/12	9:55 AM	10:19 AM	87.1	89.0	3.7	4.2	X	*Uta stansburiana* (5)	**Steve Pruett, Allison Locatell, Sami Neymark, Jake Hutton**
8/15	10:38 AM	11:14 AM	91.8	94.7	4.8	8.4		*Uta stansburiana* (12)	**Jake Hutton, Shane O'Malley, Allison Locatell, Sami Neymark, Samuel Louden, Waring Laurendine**
8/20	10:02 AM	10:39 AM	86.2	89.7	6.7	1.0	X	*Uta stansburiana* (3)	**Samuel Louden, Sabrina Alaniz**
Telecom 2									
8/5	1:00 PM	1:12 PM	86.5	88.8	4.1	6.6		*Uta stansburiana* (2)	**Garrett Moss, Blaine Grant, Steve Pruett, Sami Neymark, Woody Moise, Samuel Louden**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		15 meters offset	Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End			
8/7	11:46 AM	12:03 AM	91.5	93.0	5.2	6.9	X	*Uta stansburiana* (8)	**Steve Pruett, Woody Moise, Sabrina Alaniz, Alli Rhodehamel, Shane O'Malley, Samuel Louden**
8/12	10:31 AM	10:44 AM	89.0	88.9	4.2	3.7		*Uta stansburiana* (6)	**Steve Pruett, Allison Locatell, Sami Neymark, Jake Hutton, Shane O'Malley, Samuel Louden**
8/20	11:51 AM	12:06 PM	92.6	92.2	2.0	0.8	X	None	**Kayla Doty, Sami Neymark, Jake Hutton, Russell Kokx, Sabrina Alaniz, Samuel Louden**
Telecom 3									
8/5	9:30 AM	10:06 AM	77.9	80.6	2.6	1.7		*Uta stansburiana* (29)	**Woody Moise, Blaine Grant, Steve Pruett, Samuel Louden, Sami Neymark, Garrett Moss**
8/13	10:36 AM	11:09 AM	91.9	94.2	3.7	3.1	X	*Uta stansburiana* (21)	**Steve Pruett, Sami Neymark, Shane O'Malley, Samuel Louden, Jake Hutton, Allison Locatell**
8/15	8:21 AM	9:13 AM	77.2	85.3	4.6	1.7		*Uta stansburiana* (58)	**Jake Hutton, Shane O'Malley, Allison Locatell, Sami Neymark**
8/20	8:36 AM	9:30 AM	77.0	85.3	6.6	2.1	X	*Uta stansburiana* (58)	**Kayla Doty, Sami Neymark, Jake Hutton, Russell Kokx**
Telecom 4									
8/8	9:06 AM	10:08 AM	77.9	85.5	1.5	6.1		*Uta stansburiana* (5)	**Steve Pruett, Samuel Louden**
8/11	9:43 AM	10:20 AM	84.2	87.9	3.6	1.4	X	*Uta stansburiana* (29)	**Steve Pruett, Samuel Louden**
8/21	9:50 AM	10:42 AM	83.9	91.6	4.7	6.0		*Uta stansburiana* (11)	**Steve Pruett, Jake Hutton**
8/24	9:03 AM	10:15 AM	79.3	93.0	1.7	3.6	X	*Uta stansburiana* (30)	**Steve Pruett, Waring Laurendine**
Telecom 4 Drainage Crossings									
8/8	10:17 AM	10:59 AM	85.5	89.0	6.1	7.4		*Uta stansburiana* (15)	**Steve Pruett, Samuel Louden**
8/11	8:40 AM	9:35 AM	77.0	84.2	5.0	3.6	X	*Uta stansburiana* (9)	**Steve Pruett, Samuel Louden**
8/21	9:32 AM	11:56 AM	83.9	95.0	4.7	8.4		*Uta stansburiana* (28)	**Steve Pruett, Jake Hutton**
8/24	8:45 AM	11:29 AM	79.3	94.3	1.7	3.6	X	*Uta stansburiana* (31)	**Steve Pruett, Waring Laurendine**
Telecom 6									
8/8	9:10 AM	9:55 AM	78.8	81.2	2.5	4.0		*Uta stansburiana* (16)	**Woody Moise, Sabrina Alaniz, Alli Rhodehamel, Shane O'Malley**
8/11	8:35 AM	9:55 AM	82.1	88.0	0.2	6.6	X	*Uta stansburiana* (31)	**Allison Locatell, Sami Neymark**

Survey Date	Time		Temperature (°F)		Wind Speed (Average mph)		15 meters offset	Reptile Observations (Number)	Surveyors (**Bold = Level II**; Plain text = Level I)
	Start	End	Start	End	Start	End			
8/23	8:35 AM	9:44 AM	77.7	82.4	1.5	5.4		*Uta stansburiana* (27)	**Steve Pruett, Waring Laurendine, Sami Neymark**
8/24	8:01 AM	8:52 AM	77.1	80.3	0.0	0.0	X	*Uta stansburiana* (45)	**Woody Moise, Sami Neymark, Casi Cortez**
Telecom 7									
8/8	10:02 AM	10:26 AM	81.2	83.2	4.0	3.6		*Uta stansburiana* (9)	**Woody Moise, Sabrina Alaniz, Alli Rhodehamel, Shane O'Malley**
8/11	10:03 AM	10:29 AM	88.0	84.9	6.6	9.3	X	*Uta stansburiana* (9)	**Allison Locatell, Sami Neymark, Shane O'Malley, Jake Hutton**
8/23	9:56 AM	10:30 AM	82.5	84.6	5.7	5.0		*Uta stansburiana* (11)	**Steve Pruett, Waring Laurendine, Sami Neymark**
8/24	8:59 AM	9:24 AM	80.3	85.3	0.0	4.8	X	*Uta stansburiana* (20)	**Woody Moise, Sami Neymark, Casi Cortez**
Telecom 8									
8/11	8:31 AM	9:32 AM	77.4	78.7	5.6	2.8		*Uta stansburiana* (4)	**Shane O'Malley, Jake Hutton**
8/12	8:40 AM	9:26 AM	77.5	80.9	1.6	4.7	X	*Uta stansburiana* (16)	**Shane O'Malley, Samuel Louden**
8/23	11:10 AM	12:02 PM	85.7	92.6	1.7	4.2		*Uta stansburiana* (16)	**Steve Pruett, Waring Laurendine, Sami Neymark**
8/24	10:02 AM	10:41 AM	82.9	86.5	2.8	5.2	X	*Uta stansburiana* (23)	**Woody Moise, Sami Neymark, Casi Cortez**